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Using Corpora with Taiwanese College Students in a Student-centred, Corpus-assisted Translation Curriculum

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Using Corpora with Taiwanese College Students in a Student-centred, Corpus-assisted Translation Curriculum

by

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Abstract

Previous studies show that corpora are helpful to translation teaching and learning in numerous ways; however, the students' use of and attitudes towards corpus-assisted translation are seldom discussed. This research addresses the following two issues regarding the implementation of a student-centred corpus-assisted translation approach with twenty-nine Taiwanese university students undertaking English-majors. Firstly, how do students use corpora to learn translation, and what are students' perceived benefits and difficulties in this process? Secondly, is the approach helpful to the students' learning attitudes towards translation? A case study of the approach was conducted to investigate how the designed curriculum was taught and how students responded to it. The selected corpora for the approach are Sinorama bilingual corpus and British National Corpus (BNC), and the corresponding corpus tools are TotalRecall and Tango. Questionnaires, student group interviews, students' online feedback, pre-test and post-test, and query log analysis were adopted as instruments to verify the results. The results show that the intermediate leveled students preferred TotalRecall to Tango because they are dependent on the Chinese translation in the bilingual corpus to help them comprehend the query results. Evidence shows that the lower level students still had major problems with grammar, and all three levels of students had some problems in synthesizing the query results. The findings show that students benefit from corpus-assisted translation in the areas of accuracy rate, correct word choice (vocabulary use/collocation), grammar, and spelling when they are doing a translation cloze test. In the students' views, the corpus tools, apart from providing them with better assistance than dictionaries, help them solve translation problems independently and construct their knowledge in translation. Furthermore, the results also indicate that the majority of the students are positive towards corpus-assisted translation and their learning attitudes in areas such as interest, motivation, learner autonomy, and confidence are enhanced. The findings provide evidence that the student-centred corpus-assisted translation approach has, to different extents, helped the students acquire the abilities to solve translation problems independently by consulting the corpus tools, and thus become autonomous learners.

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Chapter 1 Introduction

This thesis is about an investigation into Taiwanese college students' use of, and attitudes towards, corpus-assisted translation. I have a strong interest in finding out how useful corpora are to the Taiwanese college students' learning of translation, and therefore decided to introduce them into my teaching of translation in Taiwan. I was interested to discover how effective this was and what the students' attitudes were towards using corpora to assist them to translate. This was the origin of the study. I will first of all introduce the background context and then discuss my motivation for undertaking this research, before presenting my research questions and outlining the contents of the thesis.

1.1 Context of the Research

Taiwan is an island country located in Asia, and Mandarin is the official language of the country. English is learned by most people as a foreign language, and it is not used very much in people's daily lives. It is a language that is often spoken or written in language classrooms, but not in real life situations for most of the people. However, there are some exceptions. English ability is required as an important medium of communication in most foreign enterprises and trading businesses in Taiwan. If people want to get good job offers, they need to have a good level of competence in English. Nowadays, even the public servants who work in government offices are required to pass the General English Proficiency Test (GEPT), so they can get promoted or have a salary rise. As a result, adult English learners have to take private English lessons in cram schools or language institutes. Most parents would prefer to send their children to bilingual kindergartens or institutions that provide English education, so that their children will not lose in the competitions at the initial stage of their learning.

In the Taiwanese education system, English became a mandatory subject in elementary schools for students of grades five and six in 2001, and has extended to grade three and above since 2005 (Chang, 2006). Li (2004, p.210) states that English is an important subject from junior high school onwards in Taiwan, and it plays an important role in the academic performance of students. Wu (2007) argues that

successful results in internal and external English assessment tests have become influential for the qualifications leading to school graduation and for job promotion in Taiwan. As a result, English education in Taiwan has always been test-oriented, and most students study English for the purposes of getting high scores in their academic performance and passing various accreditation tests.

In most Taiwanese universities, students are required to take Freshman English and Lab English in their freshman year in university, and some universities provide practical English in the sophomore year as well. The majority of universities in Taiwan also require students to pass the preliminary test for the Intermediate level of GEPT as a graduation prerequisite. Therefore, preparing for passing GEPT has become the emergent trend of English teaching and learning in most of the universities in Taiwan since about a decade ago. Taiwanese university students are used to focusing their English learning on passing examinations and to studying English as an academic subject instead of a language in use. They do not know how to use the vocabulary and expressions they have memorized and to put them into appropriate contexts. Since English is neither a home language nor a second language in Taiwan, most learners often have confusions in language usage and collocation combinations when they use spoken or written English.

Most of the Departments of Foreign Languages or Applied English Departments in Taiwanese Universities offer compulsory or elective translation classes for the students to choose from. Translating from English into Chinese and translating from Chinese into English are the two most common translation subjects. Translating into students' native language is always easier than translating into a foreign language, i.e. English in this study. Therefore, the problem of misuse in vocabulary and collocation gets even worse in translation classes where the students are required to translate texts from Chinese into English.

1.2 Motivation

As a researcher and a college translation teacher in Taiwan, I have observed these problems for several years, and really would like to find solutions to better the situation. As I was searching for my thesis topic, I attended the 2011 International

Conference on Translation and Interpretation in Taiwan, and went to several presentations on the topic of a corpus-assisted translation approach. I was deeply impressed by the applications of corpus in translation and interpretation teaching and research, especially the value of using corpus-assisted translation in translation classrooms. I therefore decided to conduct my research on this topic to further study the usefulness of corpora in translation teaching and learning for Taiwanese college students.

I am also aware that there is not much research done in the area of corpus-assisted translation in Taiwan. This is why I think it is a significant area to study. Therefore, I decided to teach a translation course with a student-centred corpus-assisted translation approach. The students can choose the corpus that suits their needs in translation, and make enquiries by using the corpus tools. Corpus tools can help students to extract relevant authentic language examples from the selected corpus and help them to produce translation texts, which could be far more helpful than the traditional grammar translation approach. Hopefully, by teaching the students how to use corpus tools to assist them to translate, the students' interest level and motivation in learning translation can be increased.

Since a traditional grammar translation approach is still commonly adopted by most of the translation teachers in Taiwan, I hope to introduce a corpus-assisted translation approach as an innovative approach for teaching translation. Using corpora as an aid to translation has been widely discussed by several scholars in the Western World. Possamai (2009) states that the use of corpora has shed light on the field of translation over the past decade, and computer software has made analysis of the corpus data possible. Corpora, therefore, have been utilized in various translation-related fields. Numerous research and teaching experiments have been conducted to prove the usefulness of corpus as an important resource in translation production and translator training. Scholars and researchers believe that corpus and bilingual concordancers are useful resources in teaching and learning translation (Bowker, 1998; Gao, 2011; Kenning, 2010; Possamai, 2009; Rodríguez-Inés, 2009, 2010; Tseng, 2009; Wang, 2011; Xiao and Yue, 2009; Zanettin, 1998, 2002).

1.3 Aim of the Research and its Rationale

Being a teacher in this context, I am aiming to study what benefits the Taiwanese university students receive in corpus-assisted translation, the difficulties and problems they encounter in the process, how they make use of corpus tools to help them translate, and what their attitudes are towards corpus-assisted translation. I am aware that there is not a lot of research done related to this topic especially in the Taiwanese context. However, I believe that the corpus-assisted translation approach is a very useful method to help Taiwanese students improve their translation abilities and learner autonomy.

The literature offers much evidence about the value of corpus-assisted approaches to translation but few studies have been conducted into the use of a student-centred corpus-assisted translation approach. There are also few studies on the use of the approach with Taiwanese students. Researchers and translation teachers in Taiwan have only noticed the importance of corpora recently; traditional approaches are still commonly adopted by most translation teachers in Taiwanese universities. Therefore, I decided to teach a translation course with a student-centred corpus-assisted translation approach. More specifically, a bilingual concordancer and a collocation concordancer were selected as training tools for the students to make enquiries and learn to solve translation problems independently.

I am interested to investigate how the corpus-assisted approach will work with Taiwanese university students of intermediate English level, how the students use corpus tools to learn translation and their perceptions and attitudes towards the approach. A Case Study was conducted, using corpus and concordancer to teach a translation module, and research data was collected at the same time. This research aims to find out the following two perspectives regarding the implementation of a student-centred corpus-assisted translation approach with a group of Taiwanese university students undertaking English-majors. Firstly, how the students use corpus to learn translation, and perceived benefits and difficulties for the students in this process. Secondly, whether the student-centred corpus-assisted translation approach is helpful to the students' learning attitudes towards translation in areas such as learner autonomy, increase of interest, motivation and confidence.

1.4 Research Questions

The research questions this study addresses are the following:

Part 1: Using Corpus to Learn Translation

1. Which of the two corpora tools (TotalRecall and Tango) do the students think is more useful to translation? Why do they think it is particularly useful? What use do the students make of TotalRecall and Tango in Translation tasks?
2. What are the difficulties and problems students encounter when using corpus tools to assist them in translating?
3. What are the benefits the students receive through using corpus tools to assist them in translating?

Part 2: Students' Perceptions and Attitudes towards the Student-centred Corpus-assisted Translation Approach

4. What are the students' perceptions of and attitudes towards the student-centred corpus-assisted translation approach? In comparison with a traditional translation approach, which approach do the students think is more helpful to their learning of translation?
5. Is there any evidence of the effectiveness of the approach in areas such as increase in students' level of interest, motivation, learner autonomy and confidence in translating?

1.5 Overview of the Structure of the Thesis

There are six chapters in the thesis:

Chapter 1 is the introduction, which describes the context of the research, motivation for it, aim of the research and its rationale, research questions, overview of the structure of the thesis.

Chapter 2 is the literature review, which reviews the relevant literature in the following areas of study: corpora and language learning, corpus-assisted translation, using corpus in teaching and learning translation, student-centred corpus-assisted translation approach, pedagogy, constructivism, scaffolding, corpus tools as scaffold,

problem-based learning, metacognition, learner autonomy, and learners' attitudes.

Chapter 3 is the methodology of the study, which covers the design of the research, research participants, ethical approval and informed consent, methods of data collection, procedures followed, analysis of data, problems, and validity and reliability.

Chapter 4 is the results chapter, which reports the benefits the students receive in corpus-assisted translation, the difficulties and problems the students encounter in corpus-assisted translation, how students make use of TotalRecall and Tango in translation tasks, the students' perceptions of and attitudes towards the student-centred corpus-assisted translation approach, and the effectiveness of the approach in enhancing the students' learning attitudes.

Finally, chapter 5 covers discussion, recommendations and conclusions. It comments on the results and findings to the research questions. It also discusses the recommendations arising from the research, which give suggestions for translation teachers in Taiwan, for the design of concordancer, and for future research. In addition, reflections, implications, contributions, and conclusions of the study were also discussed in this chapter.

Chapter 2 Literature Review

This research is proposing to use a student-centred corpus-assisted translation approach to teach a translation course. There are two aspects to this, as to any taught course – the content of the course and its pedagogy – and these will be the focus of this chapter. The literature review will be presented in the following two parts: the development of and the theoretical framework of the student-centred corpus-assisted translation approach. The development of the student-centred corpus-assisted translation approach will be discussed in the following four sub-fields in the first part of the literature review. The four sub-fields include corpora and language learning, corpus-assisted translation, using corpus in teaching and learning translation, student-centred corpus-assisted translation approach.

In the second part of the literature review, the theoretical framework of the student-centred corpus-assisted translation approach will be discussed, and the fundamental theories underlying the approach will also be examined. The theoretical framework of the student-centred corpus-assisted translation approach lies in the following five aspects: pedagogy, constructivism, scaffolding, corpus tools as scaffold, problem-based learning. Constructivism is a student-centred theory of learning; its focus is how the learners construct their own learning. Learners construct knowledge, sometimes with help from a scaffold and via the process of problem solving, and eventually reach the ultimate goal of learner autonomy. Furthermore, learners' attitudes will also be discussed in the following three aspects: metacognition, learner autonomy, and learners' attitudes.

2.1 Development of the Student-centred Corpus-assisted Translation Approach

Definition of a Corpus

The development of the student-centred corpus-assisted translation approach can be traced back to the rise of using corpora in language learning. The term corpus used to mean a collection of work by the same author (Baker, 1995; O'Keeffe, McCarthy & Carter, 2007). Because of the advances in computer technology, it has become possible to have easy access to large language databases containing

hundreds of millions of words, and electronic corpora allow computer software to analyze the data (Baker, 1995; O'Keeffe, McCarthy & Carter, 2007). Many scholars define a corpus as a large and principled collection of texts of natural occurring language, which can be written or spoken; it is designed to include texts of specific criteria, which represent a sample of a language or parts of a language (Baker, 1995; Flowerdew, 2012; Johnson, 2009; O'Keeffe, McCarthy & Carter, 2007; Reppen and Simpson-Vlach, 2010; Sinclair, 1991). However, there is a different emphasis addressed in each of their definitions of corpora. The concept of corpora will be explained respectively with these characteristics and functions.

First of all, scholars describe a corpus as a large and principled collection of electronic texts of natural occurring language. Sinclair (1991) stated that "a corpus typically contains many millions of words" (p. 171). An obvious example is the British National Corpus, which has a collection of 100 million words. Having "large" collections of language data (Baker, 1995; O'Keeffe, McCarthy & Carter, 2007; Reppen & Simpson-Vlach, 2010; Sinclair, 1991) is one of the characteristics of corpora; as a result, corpora are useful for analyzing "language patterns" (O'Keeffe, McCarthy & Carter, 2007; Sinclair, 1991). Sinclair (1991) defined a corpus as the following.

> A corpus is a collection of naturally-occurring language text, chosen to characterize a state or variety of a language. In modern computational linguistics, a corpus typically contains many millions of words: this is because it is recognized that the creativity of natural language leads to such immense variety of expression that it is difficult to isolate the recurrent patterns that are the clues to the lexical structure of the language. (Sinclair, 1991, p. 171)

In Sinclair's definition of corpora, he emphasized the nature and characteristics of corpora by stating that the collected language data in corpora occurs naturally and is selected to portray parts of a language; the repeated patterns reveal the language rules that are otherwise difficult to observe.

Apart from the "large" size of corpus data that "reveals language patterns", scholars also insist that corpora contain "principled collections" of texts (Baker, 1995; Flowerdew, 2012; Reppen & Simpson-Vlach, 2010), which can "reveal word use" (Sinclair, 1991). Reppen and Simpson-Vlach (2010) defined a corpus as "a large and principled collection of (natural) texts stored in electronic format" (p. 91), or, in other words, an electronic, large and ordered database. The collected language data in a corpus is often annotated with tagging features and is arranged in a systematic way. Therefore, when the corpus tools are drawing out language data from a search, the search result can be displayed in an ordered way. For example, KWIC (key word in center) is one of the common ways of presenting search results, which clearly shows how the key word is used in its context and what the words are that collocate with it. Besides, the number of occurrences of search words can also be listed in search results. Furthermore, the search key word can also be highlighted which makes the results easier to observe. Therefore, the "principled collection" of texts in corpora can reveal word use. Flowerdew (2012) defined a corpus as the following.

> A corpus is a collection of naturally occurring language which has been compiled according to principled design features. Corpora are often annotated with part-of-speech tags or marked up with metadata features giving information about the genre, author, interlocutors, date and place of publication, etc. (Flowerdew, 2012, p. 320)

When defining a corpus, Flowerdew (2012) explained how a corpus is designed and put together, and presented the tagging features and the profile information of the language collected in electronic corpora. The "tagging features" and "metadata information" provide the genre and context of the language data collected, and reveals how a language is used by certain users and in specific contexts. With the "principled collection" of texts, "word use" can be revealed from the "recurrent patterns" (Sinclair, 1991) in the language data in corpora.

Since a corpus is made up of "authentic texts" (Flowerdew, 2012; O'Keeffe, McCarthy & Carter, 2007; Reppen & Simpson-Vlach, 2010; Sinclair, 1991; Teubert, 2005), they can provide "numerous examples" of a search word (O'Keeffe,

McCarthy & Carter, 2007). O'Keeffe, McCarthy and Carter (2007) argue that the advantage of investigating words in a corpus for lexical or grammatical usage is that it provides a large number of examples of the search word in context (p. 3). Corpora are often used to analyze and observe the patterns or characteristics of a language. O'Keeffe, McCarthy and Carter stated that corpora have become "standard tools" for compiling dictionaries because of their value in revealing language patterns based on huge authentic language databases (p. 17).

Teubert (2005) argued that corpus linguistics investigates a language from a social perspective. The meanings of words and phrases exist in their social contexts; the contexts define the meanings of the language expressions, and people from the same language community have common understanding towards these expressions. Lexicographers observe the meanings of language expressions from the authentic language examples collected in the corpora, and improve their descriptions of words based on the conclusions of these observations. Teubert further contended that the reason people know about the meanings of words and expressions is because these expressions have been used by other people from the same language community. However, if the expressions have never been used in the language community, no one will know the meanings. Therefore, corpora provide the resources for investigating meanings of words and phrases, because they are a collection of authentic language texts which have been used by people of the same community.

Due to the development of modern computer technology and corpus linguistics, the data of corpora is generally stored in "electronic form" (Baker, 1995; O'Keeffe, McCarthy & Carter, 2007; Reppen & Simpson-Vlach, 2010; Sinclair, 1991), and can be analyzed with "computer software" (Baker, 1995; O'Keeffe, McCarthy & Carter, 2007). Baker (1995) therefore defines a corpus from a different perspective.

> The word corpus originally meant any collection of writings, in a processed or unprocessed form, usually by a specific author. In recent years, and with the growth of corpus linguistics, this definition has changed in three important ways: (i) corpus now means primarily a collection of texts held in machine-readable form and capable of being analyzed automatically or

> semi-automatically in a variety of ways; (ii) a corpus is no longer restricted to 'writings' but includes spoken as well as written text, and (iii) a corpus may include a large number of texts from a variety of sources, by many writers and speakers and on a multitude of topics. (Baker, 1995, p. 225)

Baker (1995) gave the origin of the term "corpus", and discussed the progress of corpora development and of the methods by which the data can be analyzed. Baker explained that corpora are now in electronic form and can be analyzed with computer software in various ways; also, it has progressed from containing only written language to containing both written and spoken language. Baker (1995) was defining corpora from the perspective of how they have developed and the variety of data they contain for language analysis. O'Keeffe, McCarthy and Carter (2007) defined a corpus from a similar perspective.

> A corpus is a collection of texts, written or spoken, which is stored on a computer. In the past the term was more associated with a body of work, for example all of the writings of one author. However, since the advent of computers large amounts of texts can be stored and analysed using analytical software. (O'Keeffe, McCarthy & Carter, 2007, p. 1)

In O'Keeffe, McCarthy and Carter's (2007) definition of a corpus, they stressed that it was because of the advances of computer technology that storage and analysis of huge amounts of language data became possible. The final characteristic of corpora as having the collected data in electronic form, brings all the other characteristics together (large amounts of data, principled collection of texts, and naturally occurring language), and makes it possible for this specific kind of language data (collected in a corpus) to be analyzed with computer software. To sum up, the four characteristics of corpora determine the specific functions that they contribute to language analysis: to reveal language patterns, reveal word use, provide numerous examples of a search word, and allow the language data to be analyzed with computer software.

The nature and characteristics of corpora have been discussed; the second part of the discussion will be about the text types of corpora, design criteria for corpora, and the ability of a corpus to represent a language. About the text types of corpora, scholars argue that the collected texts in a corpus can be written or spoken (Baker, 1995; O'Keeffe, McCarthy & Carter, 2007). O'Keeffe, McCarthy & Carter (2007) mentioned "A corpus is a collection of texts, written or spoken, which is stored on a computer. In the past the term was more associated with a body of work, for example all of the writings of one author" (p. 1). Baker (1995) also stated "A corpus is no longer restricted to 'writings' but includes spoken as well as written text" (p. 225). The definition of a corpus has evolved over time, and now it can be either spoken or written depending on the design criteria of the corpus. A corpus is no longer restricted to written texts because spoken language data can be recorded, transcribed and collected in spoken corpora, where it can also be searched and analyzed.

In addition, scholars argue that corpora are designed to include texts with specific criteria (Baker, 1995; Flowerdew, 2012; Johnson, 1999; Reppen & Simpson-Vlach, 2010). Baker (1995) argued "A corpus may include a large number of texts from a variety of sources, by many writers and speakers and on a multitude of topics" (p. 225). Flowerdew (2012) stated "A corpus is a collection of naturally occurring language which has been compiled according to principled design features" (p. 320). In other words, corpora are designed and compiled according to the particular criteria that have been set up according to the intended features and purpose of the corpora. The collection is "principled" in that the texts are purposely chosen in order to reveal the word use of specific registers of a language.

In addition to having specific criteria, a corpus is built to represent a language or parts of a language (Baker, 1995; Johnson, 1999; Reppen & Simpson-Vlach, 2010; Sinclair, 1991). As a result, corpora provide great resources for language analysis because of their ability to represent a language. Scholars argue that the representativeness of a corpus is crucial for producing valid results in language analysis. Baker (1995), Johnson (2009), Reppen and Simpson-Vlach (2010) argue that the value of a corpus lies in its size and representativeness. Baker (1995) stated that "What is important is that it [a corpus] is put together for a particular purpose and according to explicit design criteria in order to ensure that it is representative of

the given area or sample of language it aims to account for" (p. 225). In other words, the collection of texts in the corpus has to be able to effectively portray the language. Johnson (1999) argues that the significance of corpora lies in their representativeness of the language of the collected texts, and that they function as samples of a language or of parts of a language (pp. 89-90). Reppen and Simpson-Vlach (2010) also contend "A well-designed corpus should aim to be representative of the types of language included in it" (p. 93). Since corpora are designed to function as a sample of a language (Johnson, 1999), it is their representativeness that determines whether the results of any language analysis will be valid. A corpus is like a miniature model of the language it is representing. By analyzing the collected language data in the corpus, researchers are able to observe the language patterns, rules and usages of the language under study. Therefore, being representative of the collected languages is an important feature of corpora, which needs to be considered carefully when they are being designed.

The nature and characteristics of corpora make these functions of corpora possible. Although each scholar emphasizes different characteristics and functions when they are defining a "corpus", all these various aspects shape the full picture of what a corpus is, and give a detailed definition of a corpus. To sum up, the significance of corpora for the present study lies in their nature of revealing language patterns and word use, and of providing numerous examples of the search word in context based on the large and principled collection of authentic language texts.

2.1.1 Corpora and Language Learning

With the rise of using corpora in language learning, the value of corpora has been widely discussed in relevant studies (Kenning, 2010; Possamai, 2009; Xiao and Yue, 2009; Zanettin, 2001). Based on the huge authentic language data collected, corpora were originally developed for the purpose of language analysis, for instance finding out the patterns of grammatical rules. Later, corpora were used to draw out authentic example sentences to compile dictionaries. Reppen and Simpson (2002) stated that one of the most significant contributions of corpus linguistics is that it reveals the patterns of language use in various settings. It also supplies a powerful instrument in analyzing authentic language, and can differentiate between oral and

written communication, official and informal discourse. Language teachers use corpora to supply them with authentic language examples and to assist them in preparing classroom materials.

Corpora have gradually become accepted and are used in language teaching and learning. Using the data contained in a corpus as an aid in language learning has been described as "data-driven learning." Boulton (2011) stated that Tim Johns was the first person that suggested the idea of "data-driven learning" more than twenty years earlier, when he mentioned the term "data-driven learning" (DDL) in a paper for the first time in 1991 in a collection of influential papers that was co-edited with Philip King, his colleague. Chambers (2010) argued that data-driven learning (DDL) changed the role of language teachers substantially, and they became facilitators of language learning in the classroom instead of the only authority on target language knowledge. They provide suggestions on searching strategies for using the corpus, and help the students to examine and understand the search results. Gilquin and Granger (2010) state that the DDL teaching method allows learning to be arguably more inspiring and interesting because it contains a component of discovery. Gilquin and Granger used a variety of activities to inspire the trainees they were teaching to make use of corpus, make observations of language use and obtain understanding of the language. They observed that learners following the DDL teaching method are more engaged, enthusiastic, and eventually more autonomous in their language learning.

2.1.2 Corpus-assisted Translation

More than a decade ago, corpora were introduced to assist translation production and translator training. Rodríguez-Inés (2010) defines a parallel corpus as one which contains the original language texts of one designated language and their translated target language texts in one or more other languages, which have been aligned with each other. Baker (1995) asserted that Parallel corpora have made the most significant contribution in Translation Studies by supporting the shift of focus from prescriptive to descriptive translation studies. Baker also contends that parallel corpora allow an evidence-based model to be established to help novice translators by demonstrating how translation problems are solved in actual practice. Possamai (2009) also argued that the use of corpora has shed light on the field of translation

over the past decade, and computer software has made analysis of the corpus data possible. Corpora, therefore, have been utilized in various translation-related studies.

Aston (1999), Bowker (1998), Gao (2011), Rodríguez-Inés (2009), Rodríguez-Inés (2010), Tseng (2009), Wang (2011), Xiao and Yue (2009), and Zanettin (1998) argue that corpora are helpful to translation teaching and learning in numerous ways. Aston (1999) claims that whenever suitable corpora are available, translators are able to find quicker and more accurate reference from corpora for identical situations to solve their translation problems. They have an affirmative impact on learning and can help translators to better understand the source texts and acquire strategies in producing more idiomatic and native-like target texts. Xiao and Yue (2009) argue that a monolingual corpus of the source or target language generally can help the translators increase their knowledge in language and culture, and can be a useful and powerful tool of reference for translators and learners of translation; therefore, they are really valuable to Translation Studies.

Kenning (2010) contended that the importance of comparable and parallel corpora lies in the accessibility they allow to the massive collected data. Kenning also argued that ranslators use them to solve the problems they encounter in translation by searching for knowledge and ideas in them, and they have been used as a major tool for training translators in many current programs. Corpora have become an important resource of great value to translators and translator training. Xiao and Yue (2009) asserted that the three critical contributions of corpora to applied Translation Studies are "corpus-assisted translating, corpus-aided translation teaching and training, and development of translation tools" (p. 243). Xiao and Yue note that the significance of corpora, corpus linguistic skills and applications have been proved by a growing number of research papers showing that they are helpful to translation assessment, translator training and facilitating the generation of translation texts.

2.1.3 Using Corpus in Teaching and Learning Translation

Definition of Translation

The translation activity is generally defined as the process of transferring meaning between two languages. Scholars have discussed the definition of translation in detail. Palumbo (2009) explained that "A translation may be defined as a text in one language that represents or stands for a text in another language; the term translation also refers to the act of producing such a text" (p. 122). Munday (2001) argued that the word translation has several meanings: it can refer to the discipline of study, the process of translation (the behaviour of translating texts from one language to another), or the product of the translation activity (the translated texts). Munday (2001) further explained that a translator is involved in transferring the message from the source language text into the target language text, in the process of translating between two languages (pp. 4-5). In the context of the present study, the student participants are novice translators who are learning the skills to transfer the meaning of the source language (Chinese) text, into the target language (English) text.

Translation has a long history and has been used in a variety of fields and for numerous purposes. However, it was not regarded as an academic discipline until about half a century ago. In 1972, Holmes (1972/1988) presented his seminal paper "The Name and Nature of Translation Studies" at the Third International Congress of Applied Linguistics held in Copenhagen, and first proposed the adoption of "translation studies" as the "standard term for the discipline as a whole" (1972/1988, p. 70). Bassnett (1980/2002) also confirmed that translation studies came into existence as a new academic discipline in the late 1970s.

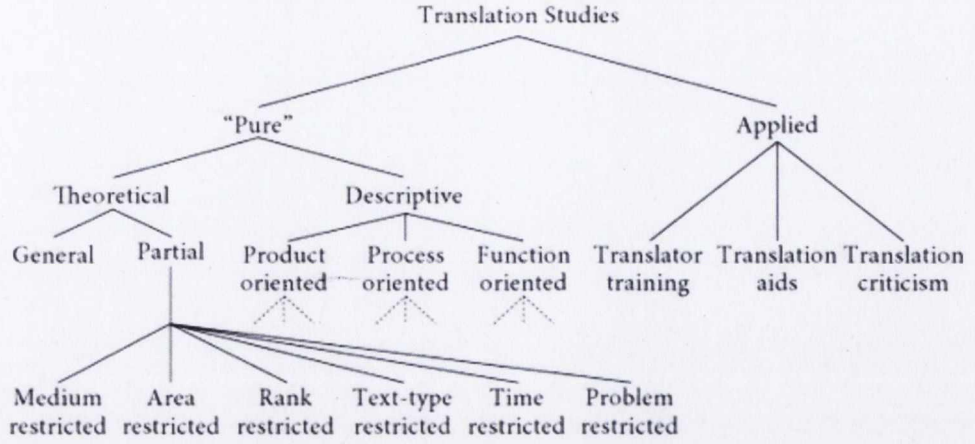


Figure 2-1 Holmes' map of translation studies (from Toury, 1995/2012, p. 4)

Holmes (1972/1988) covered the basic components of translation studies in his seminal paper, and Toury (1995/2012) elaborated Holmes' ideas and sketched the "map of translation studies" (Figure 2-1), which has become the fundamental framework for translation studies. In Holmes' map of translation studies, translation studies was divided into three main categories: theoretical, descriptive and applied (Munday, 2001, p. 10); there are also several sub-categories under each of the main categories. The areas of translation studies which this research addresses are namely "translator training" and "translation aids", which are in the branch of applied translation.

Before translation studies was recognized as an academic discipline, it used to be included in other academic disciplines, and have only been studied as a new discipline in the past few decades. Baker (1998/2001) described the development of translation studies as the following.

> As an academic discipline, translation studies is relatively young, no more than a few decades old. Although translation has been used and studied in the academy for much longer, mainly under the rubric of comparative literature or contrastive linguistics, it was not until the second half of the twentieth century that scholars began to discuss the need to conduct systematic research on translation and to develop coherent theories of translation. (Baker, 1998/2001, p. 277)

Translation having been practiced for a long time, it finally came to the attention of researchers that it is important to "conduct systematic research" and come up with "coherent theories of translation" in order to describe what translation studies are and what translation activities are about (Baker, 1998/2001). Munday (2001/2008) summarized translation activities, and discussed what translation study is, as the following.

> Throughout history, written and spoken translations have played a crucial role in interhuman communication, not least in providing access to important texts for scholarship and religious purposes. Yet the study of translation as an academic subject has only really begun in the past sixty years. In the English-speaking world, this discipline is now generally known as "translation studies", thanks to the Dutch-based US scholar James S. Holmes. (Munday, 2001/2008, pp. 5-6)

Translation is actually something that is often used in people's lives, especially in communications between people of different countries, in order to transfer and spread information. Consequently, there are plenty of issues that could be studied in such a new discipline. Baker (1998/2001) explained what translation studies is by giving examples of its different components.

> At one time, the term "translation studies" implied more emphasis on literary translation and less on other forms of translation, including interpreting, as well as a lack of interest in practical issues such as pedagogy, but this is no longer the case. "Translation studies" is now understood to refer to the academic discipline concerned with the study of translation at large, including literary and non-literary translation, various forms of oral interpreting, as well as dubbing and subtitling. (Baker, 1998/2001, p. 277)

However, translation is not limited to these components. Many other research activities are also covered. Baker (1998/2001) described the range of studies in the discipline of translation.

> Translation studies is also understood to cover the whole spectrum of research and pedagogical activities, from developing theoretical frameworks to conducting individual case studies to engaging in practical matters such as training translators and developing criteria for translation assessment. (Baker, 1998/2001, p. 277)

Translation studies does cover a wide range of research activities as listed by Baker (1998/2001). The specific areas being investigated in the current study are "translator training" and "translation aids", as mentioned previously in this section, as to how to train the students to use corpora (i.e., translation aids) to assist them in translating (i.e., translator training). In Holmes' map of translation studies (Toury, 1995/2012, p. 4) as shown in Figure 2-1, using corpus tools to assist translation production is under the category of applied translation. This is how the concept of translation in the current study is defined. In other words, Holmes' map of translation shows how corpus-assisted translation is categorized within the discipline of translation studies.

Using Corpus in Teaching and Learning Translation

Scholars contend that corpora can increase the language awareness of translation trainees and are useful to learning translation in many different ways (Gao, 2011; Gilquin and Granger, 2010; Tseng, 2009; Wang, 2011; Zanettin, 2001). Wang (2011) argues that the utilization of corpus has become increasingly significant in translation studies in China, and it can improve the language awareness of translation trainees because of the excessive amount of authentic language data stored. Zanettin (2001) conducted an experiment with college students in translating newspaper article from Italian, students' mother tongue, to English with help from a comparable corpus of English and Italian, and a concordancer. Zanettin argues that small comparable corpora can help the students enhance specified translation and facilitate the students with various kinds of learning. In other words, Zanettin found that trainees' understanding of languages and relevant cultures can be increased and their capability in reading and writing cultivated when they apply comparable corpora and concordancer in translation activities.

The results from a research experiment by Gao (2011) correspond with Zanettin's (2001) findings. Gao conducted a pilot study in investigating the effectiveness and use of CERT parallel Chinese-English Concordancer (a bilingual concordancer developed by Gao) in a Chinese-English translation task. The research subjects were twenty-one university students of higher-intermediate English level. The students were allowed to use the Yahoo online bilingual dictionary in the pretest and use CERT in the posttest. The results show that there is a significant progress in the mean score of the posttest compared to the pretest. Results from the survey showed that most participants were positive about the learning effects of using CERT and agreed that it can be helpful to their learning of English writing, reading and translation.

Tseng (2009) also conducted a similar research experiment by studying the effectiveness of the Sinorama bilingual corpus and a bilingual concordancer (TotalRecall) to high school students' learning of Chinese-English translation. The research subjects were forty-two second-year high school students. There were three pretests and posttests. The students were not allowed to use any tools to assist them translate in the pretest; however, they were allowed to use TotalRecall to help them translate in the posttest. Comparisons were made between the translations in two tests, and analyses were made to investigate the relationships between the students' query behaviours and the quality of their translation after using TotalRecall to help them translate. Tseng found that the bilingual concordancer, TotalRecall, is effective in helping the students' learning of translation, especially in their improvements in vocabulary and collocation. However, there is limited help in improving their grammar and syntax. Three-quarters of the students expressed that TotalRecall is indeed helpful in enhancing their interests in learning translation. Tseng also mentioned that TotalRecall is helpful in increasing the students' language awareness in translation.

In addition, scholars argue that corpora are better translation aids than dictionaries because they provide authentic language reference that dictionaries often do not contain, and help translators solve translation problems and confirm hypotheses (Kenning, 2010; Possamai, 2009; Rodríguez-Inés, 2009, 2010; Zanettin, 1998, 2002). Zanettin (2002) states that a parallel corpus contains a collection of

translation strategies that were used by previous translators when they were facing similar translation problems as the persons who make enquiries in the parallel corpus. Zanettin also contends that parallel corpora offer information that bilingual dictionaries often do not; they can supply evidence of how translators deal with equivalence in word choice in cases when no equivalent is available between the two languages involved. Kenning (2010) also argues that by searching for knowledge and ideas in corpora, translators use corpora as resources to help them solve the translation problems they encounter.

Rodríguez-Inés (2009) argued that the way students obtain translation skills can be enhanced by using resources such as electronic corpora and their analysis tools. If translation teachers want to improve students' abilities to resolve translation problems, the students need to be supplied with strategies to use the resources available. Therefore, Rodríguez-Inés devised a student-centred task-based approach to help the students with their development of strategies in a translation course. Possamai (2009) contends that when translators are translating, they can use corpus to help them double check their decisions, look up the collocations of specific words, search for alternatives, obtain jargon, etc. Zanettin (1998) asserts that comparable corpora are helpful in confirming translation hypotheses and offering potential resolution to translation problems of certain texts in the classroom context. Rodríguez-Inés (2010) argues that the value of parallel corpora in translator training is not restricted to providing a fixed resolution for translation problems, but it can also provide information such as useful translation strategies for the translation classroom.

The application and utilization of corpora in translation classrooms have improved the way translation teachers teach and translation students are trained (Gao, 2011; Rodríguez-Inés, 2009, 2010; Zanettin, 2001). Zanettin (1998) demonstrated the usefulness of bilingual corpora in designing a series of classroom activities with the objectives of improving the trainees' comprehension of the source language text and capability to interpret the meaning and transfer it into the target language text. Rodríguez-Inés (2009) argues that in the documentation stage electronic corpora and corpus analysis tools are useful resources to translators, and have advanced translation related activities including the way translation is practiced and taught, and

translation trainees are trained.

Several scholars have conducted teaching experiments to prove the value of corpora as an important resource in assisting translators and translation trainees to produce translation of better quality in various ways (Bowker, 1998; Gao, 2011; Rodríguez-Inés, 2010; Tseng, 2009; Zanettin, 1998). Bowker (1998) conducted a pilot research with her translation trainees in comparing the translations produced from using conventional tools and a specialized monolingual corpus, and found that translations produced with aids from the corpus demonstrated better performance in professional knowledge, term choice and idiomatic expressions. Gao (2011) also conducted a pilot study, and evidence was found in the post-test that using the CERT bilingual concordancer helped the students with their lexical choice, collocations, phrasing and word forms in their translation tasks.

2.1.4 Student-centred Corpus-assisted Translation Approach

The difference between a traditional translation approach and the student-centred corpus-assisted translation approach lies in the change of roles for the teacher and the students (Rodríguez-Inés, 2009, 2010). Liao (2009) states that both traditional translation teaching and a grammar translation approach in EFL (English as a Foreign Language) teaching are teacher-centred approaches; the teacher plays the role of a knowledge distributer (p. 87). However, the roles of teachers and students are really different in the student-centred corpus-assisted translation approach. Wang (2011) contends that learners are not receivers of knowledge any more in corpus-driven learning; instead they have become researchers who pay more and more attention to the patterns of language. Wang argues that the role of the teacher involves stimulating the learners to search for truth and answers and take pleasure in the process of discovery learning in this kind of teaching approach. Rodríguez-Inés (2009) argues that the role of teachers used to be that of information providers who had an answer for every question; however, the ideal role of the contemporary translation teacher has become information facilitator, who enhances the students' training processes and assists them anytime needed, and most importantly inspires the students in expanding their operative knowledge.

Wang (2011) discusses the situation of translation teaching in China, saying that innovative teaching approaches are needed in China, and corpus has provided an increasingly significant application in translation studies. Wang investigates the role of corpus-driven learning in training translation students at university level in China. Wang found that with the emphasis of the constructivist learning process which is supported by the large amount of authentic language data, corpus-driven learning is a possible resolution to the difficulties that student translator training in China is facing, because it can help the trainers to become more confident in their teaching, and assist the students to become more efficient and precise in their translation.

Rodríguez-Inés (2009) suggests that the ability to use corpora should be included as a learning objective of a translation course. The evaluation of the ability is there necessary to evaluate the results of the students' learning. Rodríguez-Inés adopted a student-centred task-based approach and used corpora to teach a translation course in her research, and evaluated both the translation process and the final translation product. Rodríguez-Inés found that using corpora allowed the students, the translation task and the resources in use to be the centre of the learning process instead of the teacher. Furthermore, Rodríguez-Inés also found that "corpora (as resources) and corpus linguistics (as a methodology and a new way of approaching language work) promote a sense of discovery that increases motivation and student autonomy." In addition, Rodríguez-Inés (2010) asserts that the corpus-assisted translation teaching method represents a change from the traditional translation method. She adds that with the use of corpora, translation teachers and learners no longer need to depend on their language instincts; instead they can make decisions objectively by drawing evidence from the corpora.

Using a student-centred corpus-assisted translation approach helps the translation trainees to produce a translation of better quality and have a stronger interest in learning translation. In Gao's (2011) research experiment, he found that the students' ability to correct their own translation was improved through using a bilingual concordancer, as were the students' language awareness and learner autonomy. Tseng (2009) investigated the relationships between students' query behaviours and the quality of their translation after using TotalRecall to help them translate. In the research findings, Tseng found that the students' abilities in solving

translation problems were improved by observing the example sentences from the query results. Tseng also found that no matter what English score attainment the students had, the quality of their translation can be improved effectively after using the corpus tool to assist them translate. The corpus tool is especially helpful in improving the students' performance of translation in areas of spelling of vocabulary (particularly terminologies) and use of collocations. There is also an increase of interest in translation through using a bilingual concordancer to assist their translation.

The value and usefulness of a student-centred corpus-assisted translation approach is demonstrated and proved by several scholars and researchers. The findings in the existing literature give strong evidence of the value of corpus to translation teaching and learning. It also provides an incentive for me as a researcher to investigate further into this area of study. Therefore, it is of interest to me whether there will be other aspects of usefulness besides those mentioned above, and how the teaching method will work with Taiwanese college students of intermediate English competency level.

We have finished discussing the first part of the literature review—the development of the student-centred corpus-assisted translation approach. Now, we are moving into the second part of the literature review, and discuss the theoretical framework of the student-centred corpus-assisted translation approach.

2.2 Theoretical Framework of the Student-centred Corpus-assisted Translation Approach

There are several theories underlying the corpus-assisted translation approach. Besides, pedagogical considerations will also be made in the following discussions. The theoretical framework of the approach will cover the following five aspects: pedagogy, constructivism, scaffolding, corpus tools as scaffold, and problem-based learning.

2.2.1 Pedagogy

As stated in the introduction, the traditional translation approach is still commonly adopted by most translation teachers in Taiwan. Liao (2009) contends that since the history of translation being taught as a professional discipline is rather short, consensus has not been reached in terms of the objectives, methods, materials, and assessment methods of translation teaching. There is a tendency in translation teaching still to make use of the concepts and methods of the Grammar-Translation Method from traditional Foreign Language Teaching (FLT) (Liao, 2009, pp. 67-68). Liao (2009) further argues that current translation training is still heavily influenced and inspired by the field of Foreign Language Teaching in terms of its theoretical and pedagogical aspects (p. 67). The conventional teacher-fronted translation teaching style is particularly influenced by the Grammar Translation Method. The teaching method can have an impact on the attitudes of the student translators. The students' learning tends to be passive and lame, and the students often feel discouraged because their translation work seldom achieves the level expected by the teacher (Liao, 2009, p. 65).

Liao (2009) argues that translation teaching lacks its own research tradition, and therefore it is inevitable to apply the similar pedagogical theories and methods of Foreign Language Teaching (FLT). However, unlike ELT that often follows the latest developments of Linguistics, Education and Learning Psychology to revise its pedagogical methods and materials, translation pedagogy seems more conservative (Liao, 2009, p. 65). Consequently, there is a desperate need to have an innovative pedagogical approach for translation teaching. As Liao contends that there is a lack of innovative teaching approaches for translation teaching, Tseng also raised a similar issue. Tseng (2009) argues that the effectiveness of using bilingual corpus in translation learning has become an issue that is of concern to translation teachers because the successfulness of which determines whether it can bring about change and innovation to the traditional translation teaching approaches. In addition, Rodríguez-Inés (2010) also argues that the corpus-assisted translation teaching method represents a change from the traditional translation method.

Regarding implementing new teaching approaches in translation education, the current research is advocating to teach with the innovative approach—the student-centred corpus-assisted translation approach. In this approach, the students, the translation task and the resources in use are centre of the learning process (Rodríguez-Inés, 2009), and students learn to construct knowledge of translation and corpus enquiry strategies by themselves through the process of using corpus tools to help them translate. Therefore, constructivism is another important topic to be discussed in the literature review because it offers the theoretical framework for the student-centred corpus-assisted translation teaching approach.

2.2.2 Constructivism

Constructivism suggests that knowledge is constructed by learners, and it can also be influenced by the context to which the learners belong (Lichtman, 2013). "Constructivism is a philosophical view on how we come to understand or know" (Savery and Duffy, 1996, p. 135). Constructivism is a theory of learning which claims to help students to become more independent, confident, and autonomous in their learning. Three relevant aspects of constructivism for the current study include scaffolding, problem-based learning, and learner autonomy.

Lev Vygotsky (1978) is a social constructivist, whose theory of learning development includes the important concept of the zone of proximal development (ZPD). Vygotsky defined the ZPD as the following:

> It is the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers. (Vygotsky, 1978, p. 86)

Vygotsky's theory of ZPD contends that children's language learning can be improved by providing support to them, for example, the conversations led by their parents, which help children to acquire language and help them to move through the ZPD to independence, when they no longer need parent-led guidance. Vygotsky

believed that learners need people and artefacts to help them achieve their goals as they progress and learn more.

Definition of the "ZPD"

Berk and Winsler (1995) explained that the ZPD is the hypothetical zone where dynamic activities take place in one's learning (p. 171). Lantolf (2000) discussed Vygotsky's theory of ZPD on a deeper level and elaborated on the theory by explaining that the ZPD is not an actual area that exists in time and space; however, it is a representation that allows observations and understandings of how mediated methods can be adopted and internalized (pp. 16-17). Lantolf (2000) further argued that mediation is the core concept of the ZPD theory since learners are mediated by their teachers and fellow learners when they are making progress in the ZPD. Lantolf (2000) asserted that mediation made it possible for novices to have the chance of becoming experts (p. 17). Therefore, mediation is an essential element in making progress happen in the learning process. Lantolf (2000) explained that the ZPD is the learning opportunity that is created due to collaborative construction, so that individuals can develop their mental abilities in social interactions (p. 17). In other words, learners improve their abilities through social interactions by collaborating with their teachers and fellow learners. To summarize, the ZPD is the imaginary place that explains how learning happens and how mediation can help "novices" to become "experts".

In the present study, the zone of proximal development can be defined as the distance between the student participants' abilities to solve translation problems independently and the students' potential abilities to solve translation problems with the help of the corpus tools and their teacher. In other words, it is the region where construction of knowledge in translation skills and problem solving takes place in the students' learning of corpus-assisted translation.

Vygotsky's theory of ZPD can be applied in justification of the student-centred corpus-assisted translation approach. The teacher helps the students to learn translation by demonstrating how to make enquiries in the corpus tools and modeling the enquiry strategies of corpus-assisted translation. The students' fellow classmates,

the teacher and the corpus tools themselves play roles as supports to the learners via peer sharing, demonstrating and providing examples in the corpus respectively. Through all these processes, the learners construct their knowledge of translation skills and metacognitive strategies for making use of corpus tools to assist them translate. The students learn to use corpus tools to translate with help.

However as they gain more experience of this process, they gradually reach the point where they do not need help from their teachers and peers anymore. They become independent, and are able to accomplish translation tasks on their own. The usefulness of using corpus to help the students learn translation lies in its abundant authentic language examples that provide support to translation learners. It is a very useful approach to help learners to progress through the ZPD. In fact, they may eventually and ideally become less reliant on referring to the corpus and may be able to translate directly without the support that it offers. In Tseng's (2009) research findings, he found that bilingual corpus has value when applied in translation teaching. It not only improves the learners' efficiency in translation, but also helps the students to become the centre of their learning and "construct" their own language ability (P. 121).

Therefore, constructivism is a very important theoretical framework underlying the student-centred corpus-assisted translation approach. It provides the basis of theory to implement the teaching approach, and gives the teachers and students a concrete idea of how translation knowledge should be built in such a translation classroom. In order to help students construct their knowledge of corpus-assisted translation, scaffolding is another important theory to be discussed.

2.2.3 Scaffolding

The corpus-assisted translation approach applies the student-centred pedagogical approaches of scaffolding and problem solving. They help the students learn better because learners are accorded a greater sense of autonomy, becoming more independent, confident and motivated in their learning. Fisher and Frey (2010) argue that the fundamental of instructional scaffolds is a rather old concept, which can be traced back to Vygotsky's (1978) theory of zone of proximal development.

Vygotsky (1978) proposed the social nature of learning:

> An essential feature of learning is that it creates the zone of proximal development; that is, learning awakens a variety of internal developmental processes that are able to operate only when the child is interacting with people in his environment and in cooperation with his peers. (Vygotsky, 1978, p. 90)

Vygotsky believed that social interaction is the key to children's development of learning; however, he did not use the term "scaffold" in his work. Jerome Bruner developed Vygotsky's ideas into the term "scaffolding". When Vygotsky's work was first translated into English in 1962, Jerome Bruner was asked to write an introduction to Vygotsky's translated book (Bruner, 1986, p. 72). As a cognitive psychologist and a theorist, Bruner was very much interested in theories of learning development. Bruner was deeply inspired by Vygotsky's work and developed Vygotsky's ideas using the metaphor of "scaffolding". Wood, Bruner, and Ross (1976) were the first scholars who used the term "scaffolding". They defined the process of "scaffolding" as the following:

> The "scaffolding" process enables a child or novice to solve a problem, carry out a task or achieve a goal which would be beyond his unassisted efforts. This scaffolding consists essentially of the adult 'controlling' those elements of the task that are initially beyond the learner's capacity, thus permitting him to concentrate upon and complete only those elements that are within his range of competence. The task thus proceeds to a successful conclusion. (Wood, Bruner, & Ross, 1976, p. 90)

Wood, Bruner, and Ross (1976) claim that with the adult's help, the scaffolding, a child is able to accomplish a task that is above his ability. By gradually adjusting the level of difficulty of the tasks, teachers guide learners to advance their learning and become more competent learners.

Definition of Scaffolding

Berk and Winsler (1995) defined scaffolding as the following.

> A changing quality of support over a teaching session, in which a more skilled partner adjusts the assistance he or she provides to fit the child's current level of performance. More support is offered when a task is new; less is provided as the child's competence increases, thereby fostering the child's autonomy and independent mastery. (Berk & Winsler, 1995, p. 171)

Berk and Winsler (1995) explained the theory of scaffolding by illustrating how children can be assisted by a more capable adult in their learning, and how the provided help is given according to each child's acquired ability. The reduction of support cultivates the child into a more independent and autonomous individual.

Daniels, Cole and Wertsch (2007) also argue that scaffolding does not reduce the level of difficulty of the task, but it simplifies the role of the learner. They further contend that the aim of scaffolding is to create a pedagogic environment that can put the efforts of the teacher and the learner together in order to achieve success in learning (p. 317).

Berk and Winsler (1995) further argue that the general purpose of scaffolding and learning is to make sure that the learners are "working on tasks in their ZPDs", so that they keep improving on what they are learning (p. 29). This idea of adult-child collaboration in scaffolding can be applied in the classroom context where there is teacher-student collaboration.

In the current study, the idea of scaffolding can be interpreted as the diminishing of support from the teacher to the student participants according to the degree of their improvements in acquiring corpus enquiry strategies and translation skills. The content of training in the curriculum and the help provided by the teacher are adjusted as the students' abilities in solving translation problems proceed until they become independent in solving translation problems. In other words, they

become capable of using the corpus tools to help them find answers to their translation problems, and can then produce correct translation texts.

The theory of scaffolding illustrates how students will be assisted with their learning of translation in a student-centred corpus-assisted translation classroom. In fact, the level of difficulties of the translation tasks was not simplified in any way. However, the students can still endeavour to accomplish the tasks with help from corpus tools, peer discussion and sharing, and help from the teacher. Next, how corpus tools can be used as a scaffold in students' learning will be examined.

2.2.4 Corpus Tools as a Scaffold

A bilingual dictionary is also a kind of scaffold for learners of translation, but now we have a better scaffold, which is corpus tools. In corpus-assisted translation, learners can make use of their first language and native culture from the bilingual corpora as a scaffold to foster their learning of the new language—English (Liou et al., 2006, pp. 78 & 91), and help them to produce translation of better quality by making references to the examples from the corpus tools. Liou et al. (2006) explain why corpus tools are better than dictionaries:

> A bilingual concordancer allows searches of various kinds for a key word or phrase and displays a large number of different contexts in two languages. Better than a dictionary entry, a concordancer can show many more examples to help learners to acquire the usage of the word or phrase. … The system ranks the results of queries and puts the most useful information in the first one or two displays. … In the bilingual mode, the translation counterpart of the query is highlighted, and citations with same translation counterpart are shown in clusters. (Liou et al., 2006, pp.80-81)

The design of the bilingual concordancer provides users with extremely useful functions to facilitate their learning of English and translation. The comparison between a bilingual dictionary and bilingual concordancer is listed in the table below.

Table 2-1 Comparison between a bilingual dictionary and bilingual concordancer

Tool	Bilingual Dictionary	Bilingual Concordancer
Search Unit	Key word search	Key word or phrase search
Display Results	Displays results bilingually	Displays results of bilingual alignment with key word highlighted
Number of Examples	Provides limited example sentences in limited contexts	Provides numerous examples in various contexts
Rank Results	No ranking available	Ranks the results of queries by frequency
Highlights	No highlight available	The translation counterpart of the query is highlighted, and citations with the same translation counterpart are shown in clusters

Note: Information for the bilingual concordancer is based on Liou et al. (2006, pp.80-81).

Besides bilingual concordancer, a collocation concordancer such as Tango also provides useful information of language reference to learners when they are translating from Chinese to English. Combinations of collocation use, their frequencies in the designated corpus and example sentences with keywords highlighted can be extracted from enquiring Tango with a English search key word. Liou et al. (2006) argue that "Using Tango, learners can discover idioms, phrasal verbs, compounds, fixed phrases, and grammatical patterns fully supported with evidence from authentic texts" (p.81). It can be observed that corpus tools such as TotalRecall bilingual concordancer and Tango collocation concordancer provide much more information and more functions than bilingual dictionaries. Scholars also argue that corpora are better translation aids than dictionaries because they provide authentic language reference that dictionaries often do not contain, and help translators solve translation problems and confirm hypotheses (Kenning, 2010; Possamai, 2009; Rodríguez-Inés, 2009, 2010; Zanettin, 1998, 2002). Therefore, it

can be asserted that corpus tools are a better scaffold than dictionaries for translation learners, and they can provide substantial help to students with their learning.

2.2.5 Problem-based Learning

Scaffolding is often used in classrooms in order to support problem-based learning (PBL). Hoffmann & Ritchie (1997) define PBL as the following:

> Problem based learning is a student-centred pedagogical strategy that poses significant, contextualized, real-world, ill-structured situations while providing resources, guidance, instruction, and opportunities for reflection to learners as they develop content knowledge and problem-solving skills. (Hoffmann & Ritchie, 1997, p. 97)

PBL introduces students to the real world by learning how to solve problems with the classroom resources and help from the instructors. Students become active learners in PBL, which helps them to develop "problem-solving skills". They learn to analyze problems, figure out possible solutions, and evaluate the solutions by undertaking a number of activities (Hoffmann & Ritchie, 1997, p. 98.) Savery and Duffy (1996) argue that the PBL environment allows learners to be actively involved in the learning tasks, which are authentic to the actual environment. Savery and Duffy further contend that PBL emphasizes that learners are builders of their own knowledge – constructivists – in an environment which resembles the context in which they would apply their learning.

In PBL, learners are motivated to think differently and observe their understandings; in other words, learning with their metacognitive skills (Savery and Duffy, 1996, p. 145). In corpus-assisted translation classrooms, the students are trained with metacognitive strategies to help them solve translation problems by making enquiries using the corpus tools. Corpus-assisted translation turns the translation questions into a problem solving process—a series of corpus enquiry procedures. It actually turns learning into investigation. Therefore, having corpus tools as a scaffold for translation learners is a useful way to help them overcome

their fears or sense of difficulty towards undertaking translation tasks.

Grave, Dolmans, and Vleuten (1999) interpret the role of an instructor in problem-based learning as being to scaffold the learning of the students (p. 901). It is the responsibility of the teacher to ensure that the students are familiar with the metacognitive strategies necessary for using corpus tools to help them solve translation problems, namely the problem solving process. Therefore, the importance of the problem solving approach becomes evident in corpus-assisted translation classrooms.

The students need to receive training and modeling from their teacher, and practice in making enquiries in the corpus tools before they are capable of doing corpus-assisted translation independently, i.e. removing the scaffold. There are a few ways that the students can be equipped with corpus enquiry strategies in a student-centred classroom. These include the training and modeling provided by the teacher, the experience gained from the practice of making enquiries, the discussion of corpus enquiry strategies with fellow classmates, and peer sharing in the classroom facilitated by the teacher. Therefore, problem-based learning provide students with a platform for them to discuss the problems they encounter in translation, and gives them opportunities to exchange their enquiry strategies of corpus tools.

2.3 Learners' Attitudes

Positive attitudes are of great importance in successful learning because they often determine how far and how deep learners will reach in their learning journey. With good attitudes, learners might become more autonomous in learning because they find an inner drive that propels them forward. Without proper attitudes, no matter how well the teacher teaches the course or how hard the student studies, the learners might not reap the maximum from the learning, and end up with poor learning results and performance. Therefore, positive learning attitudes are really important factors in successful learning.

2.3.1 Metacognition

Jausovec (2008) states that the word "metacognition" was coined by John Flavell in the early years of the 1970s, originating it from the term "metamemory" devised by the same writer in 1971. Jausovec remarks that metacognition generally refers to "thinking about one's own thinking" in the literature. A learner with metacognition is always a better learner because they think about what they are learning, and they know what they are doing. Such a learner has a mind-set which fosters positive learning attitudes. As emphasized by Little (2004), the goal of learning is to gain the ability to solve problems independently. Similarly, the purpose of a cognitive traineeship is independent learning, which can be developed by allowing the learners to reflect on what they have learned, and apply the knowledge by making explorations in new environments (Lajoie, 2005, p. 543).

The metacognitive skills of learners can be sharpened through teacher modeling and deliberate training and practice. Lajoie (2005) argues that a cognitive traineeship is time consuming in its nature and the pedagogical approaches need to demonstrate the "cognitive skills and strategies" to the trainees and scaffold them where needed to help them achieve their goals (p. 543). Hoffmann & Ritchie (1997) also state that the instructions and illustrations provided by the teacher to learners help them to get through the difficult parts of the problem solving process, and function as a scaffold to the novices, thereby enhancing learners' metacognitive strategies (p. 108). The concepts of modeling and scaffolding can be applied in a corpus-assisted translation classroom where teacher modeling, demonstrations and deliberate practice of corpus enquiry strategies are made available to the learners, so that they can solve translation problems independently. The trainees learn from their trainers via scaffolding and purposeful exercises (Lajoie, 2005) and they have to think about what the translation problem is and how they can make enquiries in the corpus which will best enable them to solve it, all of which allows the metacognitive skills of the students to be developed.

2.3.2 Learner Autonomy

Definition of Learner Autonomy

In language classrooms, students are often expected to become autonomous learners since autonomy is the ultimate goal of learning (Benson, 1997; Little, 2004; Oxford, 2003). The definition of autonomy has been widely discussed by many scholars since it has gradually become a priority in the field of language education (Benson & Voller, 1997). Oxford (2003) stated the basic definition of autonomy as follows.

> "Autonomy" is derived from the Greek "autonomos" (living under one's own laws, self-governing). The original political meaning was applied to city-states, but the meaning has expanded into other realms. Autonomy and self-regulation (a Latin-based equivalent) refer to the same condition of being self-ruled or capable of regulating one's own thoughts, learning, and actions. (p. 80)

Oxford (2003) was discussing the definition of autonomy from the perspective of its historical and linguistic origins, as well as the nature of the concept. The classical definition of autonomy was given by Holec (1981) who defined it as "the ability to take charge of one's learning" (as cited in Benson & Voller, 1997, p. 1). Benson and Voller (1997) stated that autonomy and independence have gained much attention in relation to the discipline of language education over the past twenty years. They elaborated the definition of autonomy in a broader sense and argued that the term autonomy could be used in several aspects concerning language learning.

> In language education, however, the word [autonomy] has been used in at least five different ways:
>
> 1. for situations in which learners study entirely on their own;
> 2. for a set of skills which can be learned and applied in self-directed learning;
> 3. for an inborn capacity which is suppressed by institutional education;

4. for the exercise of learners' responsibility for their own learning;
5. for the right of learners to determine the direction of their own learning. (Benson & Voller, 1997, pp. 1-2)

It can be observed that autonomy can refer to a range of ideas related to language learning. To be more specific, Benson (1997) stated that "Recent thinking on language teaching methodology has been informed by two notions in regard to learner autonomy: first, that greater autonomy is a legitimate goal of language education, and secondly, that autonomous learning is more or less equivalent to effective learning" (p. 18). It seems that not only is autonomy the ultimate goal of language learning, but also that autonomous learners are learning in a more efficient way. Benson (1997) gave these definitions for autonomy.

> Three basic definitions of autonomy in language learning:
> 1. autonomy as the act of learning on one's own and the technical ability to do so;
> 2. autonomy as the internal psychological capacity to self-direct one's own learning;
> 3. autonomy as control over the content and processes of one's own learning. (Benson, 1997, p. 25)

Benson (1997) discussed the definition of autonomy from the external and internal perspectives of the learning activity, as well as from the perspective of the process itself. Benson also elaborated on how autonomy can have an impact on learners' learning behaviours.

In Oxford's (2003) model of autonomy, it is proposed that there are four perspectives on the concept of learner autonomy, namely the Technical, Psychological, Sociocultural (Sociocultural I and Sociocultural II), and Political-critical perspectives. Each of these has different focuses on its perspectives and themes (i.e., context, agency, motivation, and learning strategies). There are two aspects to the third perspective: Sociocultural I and Sociocultural II. Both aspects involve "socially mediated learning", which "emphasizes social interaction as a

major part of cognitive and language development". Oxford (2003) argued that the sociocultural perspective has its focus on human interactions through which humans develop their abilities (p. 85). In other words, Oxford was arguing that the Sociocultural perspective emphasized the importance of mediated learning on learner autonomy.

Oxford's (2003) definition of autonomy from the perspective of Sociocultural I is based on Vygotsky's (1978) theory. Oxford (2003) defined autonomy by saying that "Autonomy is self-regulation, gained through social interaction with a more capable, mediating person in a particular setting" (p. 78). Oxford (2003) explained that context could be interpreted as specific cultural and social backgrounds, and the relationship between the more capable adult and the learner (pp. 78-79). Oxford (2003) further argued the importance of context in the Sociocultural I perspective and emphasized that mediation helps learners move through the ZPD.

> In the Sociocultural I perspective, context is important in two ways. First, learning is situated in a particular context—that is, a social and cultural setting populated by specific individuals at a given historical time. Second, context also consists of a particular kind of relationship, that of mediated learning. Mediation involves dynamic interaction between the learner and a 'more capable other' (although mediation can also occur with a book, cultural artifact, or physical model). ... Mediation helps the learner move through the zone of proximal development (ZPD). The ZPD represents the difference between (a) the learner's performance without assistance and (b) the learner's performance with assistance. (Oxford, 2003, p. 86)

Oxford was saying that learning takes place in specific social contexts with particular individuals, and mediation provides lively interactions between the learner and the more capable adult. The importance of the sociocultural background lies in providing the necessary resources for the learners to move through the ZPD and become independent and autonomous learners. As a result, context is a vitally important factor because it determines whether learning will take place or not.

Lantolf and Thorne (2006) also argued that "Mediation is the central concept of sociocultural theory" (p. 59). Lantolf and Thorne (2007) later discussed how Vygotsky's learning theories could be further applied by developing his theories of scaffolding, ZPD, and mediated learning into the Sociocultural Theory (SCT). Lantolf and Thorne (2007) also introduced SCT to Second Language Acquisition (SLA) Theory since Vygotsky (1978) emphasized the importance of social interaction in children's development in language learning. Lantolf and Thorne (2007) believed that language learners acquire language through the process of social interactions, and language acquisition has critical impacts on the development of the learners. Therefore, Lantolf and Thorne (2007) argue that the main components of Sociocultural Theory (SCT) are "mediation and regulation, internalization, and the zone of proximal development (ZPD)" (p. 220). In this way, Lantolf and Thorne (2007) linked the Sociocultural Theory with the theory of Second Language Acquisition.

Besides the learners' outside context in the learning environment as stated in the SCT, the inside capability of controlling one's own learning is also important when discussing the development of autonomy. Benson (2001) stated that the definition of autonomy is generally given as the ability to be in charge of or undertake the responsibility for one's own learning (p. 47). Benson (2001) contended that it is necessary to state clearly what is meant by "taking charge" or "taking responsibilities" in the context of language learning. Therefore, Benson (2001) argued that the definition of autonomy should be "the capacity to take control of one's own learning, largely because the construct of 'control' appears to be more open to investigation than the constructs of 'charge' or 'responsibility'" (p. 47). Benson was saying that it is important to understand clearly what the concept of autonomy is when discussing it. In other words, Benson defined autonomy from the perspective that one should be able to control one's own learning process.

Little (2004) argued that autonomy is the eventual goal for learning. Under the framework of constructivism, the student-centred corpus-assisted translation approach advocates that learners should construct their own knowledge of translation methods. Through scaffolding and problem-based learning, translation learners are guided to achieve the goal of learner autonomy.

Vygotsky (1978) argued that "What is in the zone of proximal development today will be the actual developmental level tomorrow—that is, what a child can do with assistance today she will be able to do by herself tomorrow" (p. 87). The student-centred corpus-assisted translation approach provides a supported environment of learning, and helps the learners to move through the "zone of proximal development." With corpus tools as the scaffold, learners are supported with authentic language examples from corpora when undertaking their translation tasks. In fact, the scaffolds facilitated by the instructor do not make the nature of the tasks any easier (Daniels, Cole & Wertsch, 2007); however, learners still can manage to accomplish the tasks successfully with the scaffolds available because of the graduated support they provide.

Little (2004) was inspired by Vygotsky's (1978) ZPD theory, and interpreted the definition of ZPD into "four things about learning." Little interpreted the theory into the core meaning of learner autonomy and elaborated the acquisition of autonomy in the learning process. Firstly, Little emphasized the importance of previous knowledge as the foundation of acquiring new knowledge or skills. Secondly, learning is the product of accomplishing assisted tasks under scaffolding. Thirdly, the goal of learning is to gain autonomy, which means the ability to solve problems independently. Fourthly, the autonomy gained in the learning process supplies a crucial platform to move on to the learning for the next stage. The "four things about learning" elaborated by Little explain well the cognitive process of learning itself, by which learning and autonomy come into existence.

Little's (2004) theory of learning and autonomy acquisition can also be used to explain the learning process of corpus-assisted translation, and how students become capable of translating independently. Liou et al. (2006) argue that learners can make use of their first language and native culture from the bilingual corpora as a scaffold to foster their learning in corpus-assisted translation. What Liou et al. contend is consistent with Little's first point of the "four things about learning." Little (2004) argues "new knowledge and skills can only ever be acquired on the basis of what we already know and can do" (p. 20-21). In corpus-assisted translation, students can use their first language and background knowledge of Taiwanese culture to explore the Sinorama bilingual corpus, which is a collection of magazine articles on topics

relevant to Taiwan—the students' home country. Corpus tools are therefore helpful to the students' learning of translation because they can build new knowledge on the foundation of what they already know.

Little's (2004) second point contends that "learning is the result of supported task performance" (p. 20-21). The student-centred corpus-assisted translation approach provides a supported environment of learning. With corpus tools as the scaffold, learners are supported with authentic language examples from corpora when undertaking their translation tasks. Furthermore, the students receive assistance provided by the teacher in demonstrating corpus enquiry skills, and they accomplish translation tasks by using corpus tools as the scaffold to help them translate.

In the third point, Little (2004) argues that "autonomy ('independent problem solving') is the goal of all learning, formal as well as informal" (p. 20-21). The ultimate goal of the corpus-assisted translation approach is to help students to acquire the ability in solving translation problems independently, and gain autonomy in learning translation. Students learn to solve translation problems through the actual practice of corpus-assisted translation in class, peer discussion and sharing of strategies to solve problems and explore the corpus, and teachers' feedback and suggestions about problem solving. Finally, Little (2004) remarks that "in any extended process of learning, the autonomy that we achieve at one stage provides an essential springboard to the next" (p. 20-21). The autonomy gained by the students in corpus-assisted translation provides them with a crucial platform to move on to the learning of the next stage. The "four things about learning" by Little (2004) elaborates the learning process of corpus-assisted translation, and provide a solid theoretical framework for the approach. They describe the cognitive process of learning in corpus-assisted translation, and how the students acquire autonomy and independence in the process, and become translators that can solve translation problems independently.

Little (2004) argues that the connection between collaboration and autonomy is elaborated in Vygotsky's "socio-cultural theory of development and learning." Furthermore, Vygotsky's theory of ZPD implies that autonomy not only serves as the purpose of learning, but is also the foundation for the next stage of learning (Little,

2004). Through the process of gaining autonomy, learners acquire the ability to proceed to the next stage of learning—moving through the "zone of proximal development (Vygotsky, 1978)." In other words, learner autonomy is the final product of and key to successful learning.

The significance of learner autonomy in the present research is that it serves as the final goal for the learning process of student-centred corpus-assisted translation. Generally speaking, translation is a difficult subject for most of the research participants in the current study since their English competency is in the intermediate level, not to mention that translating from Chinese into English is more difficult than translating from English into Chinese for Chinese native speakers. Therefore, the student participants face a certain level of challenge while undertaking the translation tasks, and they also need to solve numerous translation problems in the translating process. Corpus tools provide authentic language references and numerous examples of language use, and are great resources for translating. Therefore, the suggestion is made to introduce the corpus tools to assist the students in translating.

In corpus-assisted translation, learners are guided to construct knowledge of translation with the scaffolding of the teacher's demonstration of corpus-assisted translation, and to use corpus tools to help them solve translation problems. Through this process, the students gain confidence and autonomy because they come to know how to solve the problems they encounter in translation. Consequently, they do not get stuck in translation as easily as they did before. Therefore, they gain learner autonomy as the result of successful learning, and can move on to the next stage of learning.

2.3.3 Research into Learners' Attitudes towards Using Corpora

Several research studies have been conducted on using corpora in learning translation as discussed previously in 2.1.3, "Using Corpus in Teaching and Learning Translation". Results show that using a corpus in translation teaching and learning not only is useful to learners' production of translation, but is also helpful in strengthening their learning attitudes in areas such as interest, motivation and learner autonomy. Tseng (2009) found that students' interest in translation was increased

after using the bilingual concordancer to assist them to translate. However, besides increase of interest in translation, Tseng did not mention other aspects of the students' attitudes towards using the bilingual concordancer.

Besides "interest", the evidence for strengthening students' learner autonomy by using corpora as a scaffold in language teaching or translation training was found in some of the existing literature. Gilquin and Granger (2010), Gao (2011) and Rodríguez-Inés (2009) found evidence in their research experiments that using corpora or corpus tools actually led to the result of increasing students' learner autonomy. Gilquin and Granger (2010) used various activities to inspire their trainees to make use of corpus, and to make observations of language use and obtain understanding of the language. They found that learners following the DDL teaching method are more engaged, enthusiastic, and eventually more autonomous in their language learning (p. 359).

In Gao's (2011) research experiment, he found that the students' ability to correct their own translation was improved through using a bilingual concordancer, as were the students' language awareness and learner autonomy (p. 265). Furthermore, Rodríguez-Inés (2009) found that corpora and corpus linguistics advocate discovery learning that increases motivation and learner autonomy. Therefore there is research evidence to show that the learner autonomy of students is fostered in a student-centred corpus-assisted translation classroom.

Apart from interest, motivation and learner autonomy, there is also another attitude that might be expected to affect students' learning—confidence. The rich authentic language examples and reference for vocabulary and collocation use can contribute to increased accuracy in students' translated texts. Corpus-assisted translation provides a reliable reference for language use, and the students no longer need to depend on their language instincts. As a result, there might be an increase of confidence in the accuracy of the translation the students produce. However, there is only a limited number of studies that explore learners' attitudes towards using corpus tools to help them translate. As students' attitudes towards using corpus to learn translation have not been fully explored, this research is aiming to find out other aspects of students' attitudes towards using corpus tools to assist their translation.

Summary of the Literature Review

This is the framework of concepts that I am using in formulating my research into using a student-centred corpus-assisted translation approach to teach a translation course in a Taiwanese university. The literature review chapter has presented and discussed the relevant theories regarding the development of and the theoretical framework of the student-centred corpus-assisted translation approach. In the first part of the literature review, we have seen how corpora have been introduced into data-driven language learning and corpus-assisted translation studies, as well as how they can help translation trainees with their learning. The value of using corpora in translation classrooms is advocated by numerous scholars and is well supported by the various research findings in the existing literature.

In the second part of the literature review, the theoretical framework of the student-centred corpus-assisted translation approach was presented and discussed. From the discussion, we have seen how the relevant fundamental theories support the student-centred corpus-assisted translation approach. Within a constructivist theory of learning, corpus tools are of great value and support to translation learners because they act as scaffold in the learning process, and help them in solving translation problems. The student-centred corpus-assisted translation approach helps students to construct their translation skills, corpus enquiry strategies, and abilities in solving translation problems independently. In the third part of the literature review, learners' attitudes were discussed by presenting relevant literature and research findings. Discussion of metacognition, learner autonomy and other attitudes depict how learners develop their learning attitudes. Findings of students' attitudes towards corpus-assisted translation from existing literature were also discussed.

To sum up, the hypothesis on which my research study is based is that the student-centred corpus-assisted translation approach can help translation trainees to learn Chinese-English translation more effectively by making use of the corpus tools and can enhance their attitudes in learning translation at the same time.

Chapter 3 Methodology

This is a study evaluating the value of corpora to translation students and investigating their use of particular corpora and their attitudes towards the student-centred corpus-assisted translation approach in a translation course. The research questions are as follows:

Part 1: Using Corpus to Learn Translation

1. Which of the two corpora tools (TotalRecall and Tango) do the students think is more useful to translation? Why do they think it is particularly useful? What use do the students make of TotalRecall and Tango in Translation tasks?
2. What are the difficulties and problems students encounter when using corpus tools to assist them in translating?
3. What are the benefits the students receive through using corpus tools to assist them in translating?

Part 2: Students' Perceptions and Attitudes towards the Student-centred Corpus-assisted Translation Approach

4. What are the students' perceptions of and attitudes towards the student-centred corpus-assisted translation approach? In comparison with a traditional translation approach, which approach do the students think is more helpful to their learning of translation?
5. Is there any evidence of the effectiveness of the approach in areas such as increase in students' level of interest, motivation, learner autonomy and confidence in translating?

In order to answer these questions, the appropriate research strategy adopted was empirical enquiry (Williams & Chesterman, 2011). A Case Study was carried out of the student-centred corpus-assisted translation approach, using mixed methods. Both quantitative and qualitative research methods are adopted to generate the data, and triangulate the results. Christensen, Johnson, and Turner (2011) argue that "Qualitative research is much more focused on individual people and single, local groups for intensive case study, and there is little interest in obtaining results that are broadly generalizable (p. 361)." Since this case study is focusing on a small group of

designated participants, qualitative research is the appropriate method to be adopted for the investigation. Qualitative data provides rich, in-depth information for the study, but the process of data analysis is often very time-consuming.

3.1 Design of Research

This is a case study which is using mixed methods, and the case being studied is the student-centred corpus-assisted translation approach. Stake (2000) argues that case studies have come to be one of the most popular approaches to undertaking qualitative studies; however, they are not necessarily qualitative. Stake insists that case study is an option of choosing what one is researching instead of a methodology (p. 435). Richards (2003) remarks that no matter how a case study is defined, the most important thing is that a specific group, for instance an organization or a program, should be the centre of the study, and comprehensive explanations of the group should be supplied as the purpose of the study (p. 20).

The reasons why a Case Study is adopted in this research is because the nature of the enquiry fits the needs of the study and can provide rich data to answer all the research questions of the study. Cohen, Manion, and Morrison (2011) argues that a case study supplies distinctive examples of real people in authentic contexts, which allows abstract theories to become clear and easy to understand to the readers. Cohen, Manion, and Morrison further argue that the various ways that a case study can investigate conditions and situations are not always manageable or doable in statistical analysis (p. 289).

Besides, Williams and Chesterman (2011) contend that case study is one of the common approaches that is used in translation studies as an empirical research method, and it pays attention to restricted circumstances in a natural environment. Furthermore, the subject to be studied could range from one single unit to several units (p. 65). A case study allows the researcher to investigate the research questions with a specific group of people, and look into the problems at a deeper level. It also provides rich descriptions of the empirical research—implementing a student-centred corpus-assisted translation approach in a university context in Taiwan.

Therefore, case study was chosen as the most suitable method to investigate this research since this is exploratory research studying a specific group of student participants. The aim of the research is to find out how students make use of corpus tools to help them learn translation, and their attitudes towards the teaching approach. The nature of case studies can probe deeply into how the selected sample subjects think and react to the research interventions. A case study research was therefore applied by implementing a corpus-assisted translation curriculum to the research participants, and relevant data was collected with questionnaires, group interviews, pre-test and post-test, query log analysis, and students' online feedback to triangulate the findings and validate students' views from different sources of data. However, the drawback of a case study is that the results may not be representative due to its small number of samples, and caution is necessary when generalizing the results and findings.

3.1.1 A Mixed Methods Study

Both quantitative and qualitative research methods are adopted to analyze the data in order to present the multiple aspects of the research. Cohen, Manion, and Morrison (2011) contend that mixed methods research identifies the truth that the world is not either quantitative or qualitative, but is a mixed world, even though the researcher may have preference for a particular research method (p. 22). Christensen, Johnson, and Turner (2011) define that "Mixed methods research is the research approach in which quantitative and qualitative data or techniques are combined or mixed in a single research study" (p.380). Cohen, Manion, and Morrison (2011) further contend that researchers using mixed methods ask open questions such as "what, how, or why" for their research questions, which is crucial for researchers who are interested in investigating multiple explanations of the results (p. 25). Furthermore, mixed methods research increases the validity and reliability of the research because of its rich data that allows triangulation to be available in the research, which has long been advocated in research (Cohen, Manion, & Morrison, 2011, p. 26). Christensen, Johnson, and Turner (2011) also argue that the use of triangulation is helpful in supplying a better understanding to the phenomenon under investigation (p. 53).

Mixed methods look into the deeper levels of a research study, and provide rich data for analysis. Christensen, Johnson, and Turner (2011) explain the strengths of mixed methods research by saying that "mixed methods research can compensate for the weakness of one method by the systematic inclusion of another method; can provide stronger inferences; can provide rich, detailed, subjective data and objective quantitative data in the same study, etc." (p. 381) However, they also remark the weaknesses as "requiring both qualitative and quantitative research skills; being more costly and time-consuming, etc." (p. 381). In addition, Waysman and Savaya (2006) argue that the justification for "mixed methods" arises from the belief that complicated social phenomena are frequently best understood through the lenses of both qualitative and quantitative methods (p. 141). Therefore, it is believed that mixed methods best fit the needs of the enquiry, and was adopted to gather data in the current study.

The research design of the study was a one-group pre-test post-test experiment. Several data collection methods were combined in this research, rather than relying on one single research method. As a result, there is a triangulation element underlying the data collection methods. Five data collection methods were chosen to collect data of different aspects in order to form a clear picture of the study, as well as increasing the reliability and validity of the research. The five data collection methods were questionnaires, student group interviews, students' online feedback, pre-test and post-test, and query log analysis.

There is a comparative element to the students' scale of attitudes in learning translation. Midterm and final questionnaires were administered to the students to find out their attitudes towards learning translation and their level of confidence in translating. In order to investigate further about how the students think of using corpus tools to learn translation, student group interviews were conducted at the end of the semester to probe deeply into the students' perceptions and attitudes towards the corpus-assisted approach. For the students' online feedback, the student participants were asked to express feedback towards the translation course on the Discussion Forum of the University Moodle system throughout the semester to permit recording and evaluation of their attitudes towards the class.

In addition, a pre-test and a post-test were conducted at the beginning and end of the semester to evaluate the usefulness of corpus tools to the students' translation performance. As the students enquired using the corpus tools to help them answer the questions in the post-test, the key words they used to make searches were automatically recorded on a website. The purpose of recording the students' query logs was to analyze the students' query behaviours and the search strategies they employed. Therefore, the five chosen instruments were carefully selected to triangulate the results of the study and confirm the findings. Each of the instruments will be discussed in the appropriate section on data collection methods in this chapter.

3.1.2 Research Study of a College Translation Course

The case study was conducted in a college translation course in Taiwan. The one-semester translation course was divided into two parts. The first part was from the beginning of the semester till midterm examination: the second from the midterm examination till the end of the semester. A teacher-centred traditional translation approach was implemented in the first part of the course, and the student-centred corpus-assisted translation approach in the second. Teaching and training the students how to use corpora tools to assist them to translate was the intervention for the research.

Williams and Chesterman (2011) state that through observing data and undertaking experimental tasks, empirical enquiry searches for new evidence and information to back up or overthrow assumptions, or even develop new concepts (p. 58). In this research, an empirical enquiry was undertaken to evaluate the value of corpora to translation students and how useful particular corpora tools were to the students in a college translation course.

3.1.3 The Chosen Corpora Tools for this Research

The selected corpus tools in this study are the bilingual concordancer named TotalRecall and the collocation concordancer called Tango. They were developed by Liou, H. C., Chang, J., Yeh, Y., Liaw, M., Lin, C., Chen, H., You, G., Chuang, C., and Gao, Z. under the CANDLE (corpora And NLP for Digital Learning of English)

Project in 2003 (http://candle.fl.nthu.edu.tw/newcandle/Home_E.asp). TotalRecall and Tango are collectively called corpus tools in this research when they are discussed as tools for the corpus-assisted translation approach. Throughout the semester, the classes took place in a computer lab where Internet access was available to all the students and the teacher. The students were asked to practice making enquiries on the Tango and TotalRecall websites. Query snapshots of TotalRecall and Tango can be found in Appendix 1.

TotalRecall

TotalRecall is a Bilingual Concordancer, which provides access to the Chinese and English bilingual corpora of Sinorama 1990-2000 and Record of Hong Kong Legislative Council. The web link to access TotalRecall is http://candle.cs.nthu.edu.tw/totalrecall/totalrecall/totalrecall.aspx?funcID=1. The content of the Sinorama Corpus covers the Sinorama Magazine contents from 1990 to 2000. Sinorama is a bilingual magazine that introduces art, culture, education, society, economics, environmental issues, and more about Taiwan. The articles in the magazine were originally written in Chinese and then translated into English by native speakers of English who are competent in both languages. The Record of Hong Kong Legislative Council is a collection of texts of the minutes of Council meetings. They also come in the form of bilingual texts.

TotalRecall offers a concordancer tool which allows users to check all the bilingual texts collected in the corpora that contain the search word, which can be either Chinese or English. The user types the key word in the query box and clicks the button "submit", and the results will come out within a few seconds with the key words being highlighted in the search results. The user can select the number of results to be displayed, within the range of 5 to 100 instances per page. The strength of TotalRecall is that it is very easy to operate because the users can simply type any Chinese or English key word regardless of the length or number of characters, and the system will search for relevant information with the click of a button.

However, it does have a limitation too. There are 7.95 million Chinese characters and 5.63 million English words in the collected texts of the Sinorama

bilingual corpus. For the bilingual corpus of the Record of Hong Kong Legislative Council, there are 18.15 million Chinese characters and 11.9 million English words. The size of the two corpora in TotalRecall is relatively small when compared with the British National Corpus (BNC), which contains 100 million English words; as a result, there are occasions where TotalRecall users can not find any matching results for their query keywords. Therefore, they might need to either use a synonym for the keyword or choose a different keyword to make another query in order to find results in TotalRecall.

Tango

Tango is a Monolingual Collocation Concordancer, which provides access to collocation combinations and their frequencies in the selected corpus. It provides access to monolingual corpora, i.e., the BNC, the academic collocation from the BNC, and the Voice of America, as well as bilingual corpora, i.e., Sinorama 1990-2000 and Hong Kong News & Laws. The web link to access Tango is http://candle.fl.nthu.edu.tw/collocation/. The corpus that is selected from the Tango Collocation Concordancer for the present research is the BNC. The text collections of the monolingual BNC cover newspaper and magazine articles, novels, and so on from Great Britain.

Tango offers a collocation concordancer tool that allows users to check all the collocation combinations of the query key word in the corpus, the frequency of each combination that appears in the query results, and the full texts of all these examples. The keyword can only be English, and the user needs to select the part of speech of the query keyword. Then, the user needs to select the kind of collocation combination that they are enquiring about. There are three parts of speech and four collocation combinations to be chosen from for the query. The part of speech of the query keyword can be a noun, verb or adjective; the collocation combinations are VN (Verb + Noun), VPN (Verb + Preposition + Noun), VNP (Verb + Noun + Preposition), and AN (Adjective + Noun). The user types the key word in the query box, and selects the part of speech of the key word. Then they select the option for collocation combination and click the button "submit". The results come out within a few seconds with the key words highlighted in the search results.

The strengths of Tango are that it provides specific information on the collocation combinations for the query key word according to the part of speech selected, that it shows the frequency of each combination, and that it provides example sentences containing the collocation combinations. The different collocation combinations and their frequencies provide users with guidance to help them decide which word best collocates with the query key word, and the example sentences show the syntax and usage of the combinations. With 100 million words in the collected texts, the corpus size of the BNC is another of Tango's strengths.

Although Tango provides rich query results from the BNC, it still has its limitations. There is a limited number of options for part of speech (no adverbs or prepositions) and there are only four collocation combination options. Also, it is more complicated to make enquiries in Tango due to all the choices that users need to make. Furthermore, the users can only use English to make enquiries in the BNC part of Tango, which can be challenging to intermediate level language learners. The large number of query results can be overwhelming for users, as they must search through the results to find useful information. Therefore, corpus enquiry strategies become essential for making the best use of Tango.

Concluding Remark

Both TotalRecall and Tango have their strengths and limitations. It is therefore important to make the best use of both corpus tools by capitalizing on their strengths and using them complementarily to bring about the best results from the two tools to assist the students in learning translation.

3.2 Research Participants

In order to investigate how university students use corpus to learn translation, I decided to conduct a Case Study of the corpus-assisted translation approach. First of all, I started applying for Part-time teaching positions to teach translation courses and conduct my research in a Foreign Language Department or Applied English Department of a Taiwanese university. Eventually, I was offered positions to teach translation courses by two private universities in northern Taiwan. A pilot study was

carried out in one of the universities, and the research was conducted in the other university. Therefore, the context of this study was a private university in Taiwan.

3.2.1 Pilot Group

Judging from the nature of the classes and students of the two universities, it was decided to pilot the research with the evening class offered by one of the Universities. This group of students work full-time during the day and attend university part-time in the evenings. They will be called the Pilot Group in the study. There were 15 students who elected a course taught by me called Professional Translation.

3.2.2 Research Group

As for the other university, it was decided to conduct the actual research with these students because they were full-time students studying in a Foreign Language Department, and were considered likely to be more committed to the research study. They will be called the Research Group. The participants of both groups are students undertaking English-majors, as this was the preliminary requirement for the study. There were 30 students in the class; however, one of them dropped the class after the midterm examination. Therefore, this research is based on 29 students who majored in English in the Foreign Language Department of a private university. The research participants are full-time students who elected the translation module taught by me, Corpus-assisted Translation, as part of their program requirements. They were invited to participate in this research voluntarily. All of them agreed to do so, and signed the informed consent form.

The Teaching Context and the Students' Language Background

The context of the university where the research took place was that it was a private university located in northern Taiwan, but not in Taipei, the capital city of Taiwan. The majority of the student participants were third-year students majoring in English. They were required to take four compulsory translation modules in the third year of their studies (two modules in each semester), and several elective translation

courses were also offered. The Corpus-assisted Translation course, the module in which the research took place, was one of the elective modules that was offered in their program.

The majority of the student participants came from northern Taiwan, and some of them were local residents of the county where the university is located. Mandarin Chinese, the official language of Taiwan, is the language of primary use for most of the students. Besides Mandarin Chinese, some of the students also speak Taiwanese or Hakka at home. The English level of the students is classified as intermediate level because they study in a private university instead of a national university. The English proficiency level of the student participants could be observed and classified according to the English scores they received on the College Entrance Examination. According to the data provided by the university, the English scores of the majority of the research participants ranged from 7 to 12 based on a scale from 1 to 15. So, as stated, the English competency of the research participants is classified as intermediate level.

3.3 Ethical Approval and Informed Consent

The ethical considerations in relation to conducting the research are described in the following three sections.

3.3.1 Application for Ethical Approval

Application for Ethical Approval to conduct the research was sent to the School of Education Ethics Committee, Queen's University Belfast and permission was granted (Appendix 2). Then, Informed consent was gained from the Department Head of the Foreign Language Department of the university where the research took place, as well as from the student participants. The researcher explained the purpose and procedures of the research, roles and rights of participants, anonymity and confidentiality of participants and the university, and protection of the data collected. Participation in the research was completely voluntary, and the students could withdraw from the research at any time. The research abided by the ethical guidelines of BERA, and observed the principles of anonymity and confidentiality.

3.3.2 Informed Consent of the Pilot Group

For the Pilot Group, oral informed consent was gained from the Department Head of the Applied English Department of the University, as well as from the student participants. Similar procedures were followed, and assurance was given. Both the Department Head and the students agreed to participate voluntarily in the research as the Pilot Group for the study.

3.3.3 Informed Consent of the Research Group

As for the Research Group, informed consent was gained from the Department Head of the Foreign Language Department of the University. The researcher explained the purpose of the research, procedures of the research, roles and rights of participants, anonymity and confidentiality of the names of participants and the university, protection of the data collected, etc. to the Department Head one week before the class started. The researcher ensured that the Department Head understood the details of the research and the contents of the consent form. An English informed consent form was printed and the Department Head agreed and signed the form (Appendix 3).

Regarding the student participants in the Research Group, the researcher explained the details including the purpose of the research, procedures of the research, roles and rights of participants, anonymity and confidentiality of the names of participants and the university, protection of the data collected, etc. in the first class of the semester. The students were asked to think about whether they would like to participate in the research or not for a week, and sign the informed consent forms in the next class if they agreed to participate, which was one week later. The researcher made it clear that the decision would not affect their grade performance, nor their rights in the class. Apart from the Questionnaires and Group Interviews, everything that took place was what would have happened in the class anyway. Participation in the research was completely voluntary, and the students could withdraw from the research at any time if they wished.

In the second class of the semester, the informed consent forms were distributed, which were translated into Chinese so that the students could fully understand what was written on the form, and the contents on the form were explained line by line to make sure everything was clearly understood by the students. Finally, the researcher asked the students to sign the Informed consent forms (Appendix 4).

3.4 Methods of Data Collection

Richards (2003, p. 20) argues that almost any qualitative method is suitable to be used to collect data in case studies because a rich description is generated from various sources of data. Interviews are often adopted as a method of data collection, sometimes supported by recording and observation. In this research, several data collection methods have been combined to investigate the research questions in the study, namely questionnaires, student group interviews, students' online feedback, pre-test and post-test, and query log analysis. The five chosen instruments were selected to triangulate the results of the study and confirm its findings. They also increase the reliability and validity of the research. These five instruments will now be discussed in turn.

3.4.1 Questionnaire

Christensen, Johnson, and Turner (2011) state that questionnaires are statistical instruments that survey the views and conceptions of the participants (p. 56). In the present study, two questionnaires were administered to the students to find out the students' level of confidence towards their own translation, how the students make use of the corpus tools to help them translate, and their attitudes towards using corpus tools to learn translation. The latter two components only appeared in the final questionnaires. The questionnaires were administered in the midterm exam week (after the implementation of the teacher-centred traditional translation approach), and the final exam week (after the implementation of the student-centred corpus-assisted translation approach) respectively.

Questionnaires are instruments that can reveal the attitudes and thoughts of the student participants, and they allow comparisons to take place between two

questionnaires administered at different points of time. Scales of the students' attitudes and level of confidence in their translation can be compared. The questions in the questionnaires were designed based on the research questions of the study. Each research question was expanded into several relevant questions in the questionnaire, and two negative questions were also devised as checkers to see if the questionnaires yielded valid data for analysis.

Christensen, Johnson, and Turner (2011) state that Likert scaling is the most popular method for measuring attitudes in statements with scaled responses; participants choose between the items and their attitudes towards the construct are measured (p. 349). Open-ended questions allow the participants to respond with their own words instead of being restricted to certain choices (Christensen, Johnson, & Turner, 2011, p. 343). In both the midterm and final questionnaires, some of the questions were based on a 5-point Likert scale, suitable to capture attitudes, and others were open-ended questions. The closed and Likert questions were easy for the students to fill out, whereas the open-ended questions took more time to answer, and some of the students might not take the time to answer them. However, these questions can help the researcher collect rich data and avoid prior assumptions of how the students might be thinking.

In the midterm questionnaire (Appendix 5), there were 4 questions about students' background information, 9 Likert scale statements about students' learning attitudes, and 9 open-ended questions about students' views towards the translation course. In the final questionnaire (Appendix 6), there were 2 questions about students' background information, 22 Likert scale statements about students' learning attitudes and perceptions towards using corpus tools to learn translation, and 15 open-ended questions about students' views towards the translation course and using corpus tools to learn translation.

The final questionnaire included all the questions that appeared in the midterm questionnaire, and some questions about the students' views and perceptions towards using corpus tools to learn translation. The repeated questions in both the midterm and final questionnaires were designed to compare the students' attitudes and level of confidence in their translation. However, there was one distinct difference between

the two questionnaires. The midterm questionnaire was anonymous, whereas the students were asked to write down their student number in the final questionnaire. The researcher explained to the student participants that the reason for putting down their student number is for the purpose of data analysis, so that comments expressed in the final questionnaire could be analyzed and addressed with the students' coding number in the research paper. The reason for coding the final questionnaire responses is because analysis could be done based on students' level of language competency. However, it was decided to do so shortly before the administration of the final questionnaire. Therefore, the midterm questionnaires responses were not coded.

After both questionnaires were devised, they were piloted with the Pilot Group one week before they were officially administered to the Research Group. The midterm questionnaire was piloted to 13 students, and it took about 7 minutes for the students to finish, which was a little longer than the researcher had expected. The results were satisfactory, and the students from the Pilot Group did not have any confusion with the questions. Therefore no change was made to the midterm questionnaire. The final questionnaire was also piloted to 13 students, and took about 10 minutes to finish. The researcher found that it was a long questionnaire because there were far more questions than the midterm questionnaire, and took more time for the students of the Pilot Group to finish. The students of the Pilot Group did not have any confusion about the questions addressed in the questionnaire, and everything went well with the piloting. Therefore it was decided that it was not necessary to make any changes. Both questionnaires were then administered to the students of the Research Group after they were piloted with the Pilot Group.

For the Research Group, the questionnaires were administered in class during the midterm and final exams' weeks. The midterm and final exams took place in class hours in the exam weeks, and the researcher as the instructor of the module monitored the exams. The questionnaires were given to the student participants along with the midterm or final exam papers. The students were invited to participate in the questionnaire surveys and fill out the questionnaires after they finished their exams.

For the midterm questionnaire, 29 questionnaires were collected including two invalid questionnaires because some of the questions were unanswered. For the final questionnaire, 28 questionnaires were collected including one invalid questionnaire because the student chose the same response for every Likert statement. In addition, there was one student who did not return the questionnaire to the researcher. Therefore there were 27 valid questionnaires collected both for the midterm and final questionnaires. Questionnaires were considered invalid when there were a few questions unanswered and when the student responded with the same answer choice throughout the whole questionnaire. There were positive and negative questions regarding the students' attitudes towards using corpus; in other words, there were a few questions that were deliberately addressed in a negative way in order to check the validity of the students' responses. Therefore, invalid questionnaires were excluded from the data for analysis.

3.4.2 Student Group Interviews

Christensen, Johnson, and Turner (2011) argue, "Interviews allows probing and posing of follow-up questions by the interviewer; can provide in-depth information; can provide information about participants' subjective perspectives and ways of thinking, etc." (P.58). In the present study, group interviews were conducted at the end of the one-semester course in order to elicit more in-depth views of the students' attitudes and perceptions towards using corpora to learn translation. The researcher decided to conduct group interviews instead of individual interviews because the student participants might be more relaxed if they were interviewed in groups with their fellow classmates than on a one-on-one basis. To make the interviewees more comfortable, Mandarin Chinese was chosen as the interview language, which was the mother tongue of both the student participants and the researcher, so the student participants could express their thoughts more easily and completely. Based on the two elements mentioned above, the atmosphere in the group interviews was more dynamic and led to deeper discussion and better interactions between the student participants and the researcher. Therefore, it resulted in richer data than if the student participants were interviewed individually.

The student group interviews were structured interviews with 4 categories of discussion topics covering 22 interview questions written on a group interview question form (Appendix 7). The question forms were distributed to the student participants on the same day a few hours before the group interviews took place. Providing the interview schedule prior to the group interview allowed the student participants to have an idea of what the group interviews might be like. It was explained to the student participants that the questions on the form were the ones that would be discussed in the group interview. They were asked to read through the questions and think about some potential answers, so that it would be easier to discuss these topics in the group interviews.

The student participants were asked to get into groups of 4 to 6 people and sign up as groups on an interview timetable one week prior to the interview. This allowed the students to be in a group in which they felt comfortable and at their ease. The 25 students who participated in the group interviews were signed up into 5 groups. The group interviews were designed to be 30 minutes in length, however when the interviews actually took place, it was difficult to control the time due to the number of questions and the lively discussion so that the interviews lasted from 30 minutes up to an hour. The atmosphere in the group interviews led the students to deep discussions and good interactions between the student participants and the researcher, yielding insightful data for the study and providing a huge amount of information on how students make use of the corpus tools to help them learn translation and their perceptions and attitudes towards the corpus-assisted approach. The interviews were audio recorded and transcribed.

3.4.3 Students' Online Feedback

The student participants were invited to share their feedback and suggestions towards the translation course right from the beginning of the semester. Discussion forums were established for the translation module on the University Moodle system, where the students could post their thoughts and feedback at any time. After the midterm examination, new discussion forums were established regarding the corpus-assisted translation approach. The students were also asked to express what they thought about using the corpus tools to help them translate. The students'

learning feedback was also an important source of data for the study because it recorded the students' perceptions and attitudes towards the course as the module progressed. The students' online feedback was also evaluated and reported to triangulate the results of the study.

3.4.4 Pre-test and Post-test

Christensen, Johnson, and Turner (2011) state that tests are common instruments for data collection devised to evaluate attainment, performance, etc. (p. 55). In the present study, a pre-test and a post-test (Appendix 8) were devised and conducted on the same day at the end of the semester in the final exam. The students were asked to complete the same set of questions twice, a translation cloze test of 25 questions based on the college entrance examination of Taiwan. Each question was an English statement with a word or phrase missing, and the Chinese translation of the whole statement was provided. In the pre-test, the students were not allowed to use any tools to help them undertake the test.

However, in the post-test, they were asked to make use of the corpus tools, TotalRecall and Tango, as well as the Yahoo online bilingual dictionary to help them answer the questions. Meanwhile, they were asked to log unto the AWETS website to record the key words they used to make enquiries in the two corpus tools. However, the query log of the dictionary was not recorded due to the limited function of the website. Examples of the students' query logs recorded by the AWETS website are provided in Appendix 9.

3.4.5 The Use of the Yahoo Online Bilingual Dictionary

Apart from using the corpus tools, the students were also allowed to use the Yahoo online bilingual dictionary in the post-test for ethical reasons. Because of the limited time available in the module, the post-test was designed to be part of the final exam for the module. Therefore, the result of the post-test had a big impact on the student participants' final exam grade. The pre-test and post-test were designed to measure the differences between not using any tools and using the corpus tools to assist the students in translating on the same translation cloze test. However, it would

be difficult for the students to find entries for equivalent translation for some of the words they enquired about in the corpus, because the collected data in the Sinorama bilingual corpus is relatively small compared to that in a bilingual dictionary.

If the students had not been permitted to use any bilingual dictionaries, they might have felt deprived of their rights. Since the collected bilingual texts in the Sinorama corpus is very limited, they cannot provide sufficient information for translating terms when students are undertaking the translation tasks. Students would only have very limited access to checking the translation of the words they were looking for, and they might not understand the meanings of the words. Consequently, this could hinder them from doing a better job on their final examinations since the post-test was also their final examination. On the contrary, if they were allowed to use the dictionary, the students would perform better. It was indeed a dilemma, whether or not to allow the student participants to use the Yahoo online bilingual dictionary in the post-test. However, the rights of the students should never be sacrificed for the sake of the research. To maintain the spirit of ethics in the research is the key reason why this difficult decision was made. As a result, the students were allowed to use both the Yahoo online bilingual dictionary and the corpus tools to assist them in translating in the post-test.

Because the students were allowed to use the Yahoo online bilingual dictionary in the post-test, the results of the post-test scores need to be generalized with caution. It is a limitation in the study that the post-test scores may actually be better than would have resulted if the students had only been allowed to use the corpus tools and not the dictionary.

3.4.6 Query Log Analysis

To analyze the students' behaviours of enquiry strategies when they made use of the corpus tools to assist them translate, the students' query logs were recorded on the AWETS (Automatic Web-Based English Testing System) website (http://140.112.185.57/~kein/login.php), a private website designed and owned by Dr. Z. M. Gao. The students were asked to register on the website, and log onto the website whenever they were asked to make corpus enquiries for translation practice

in class, and for the exams in the post-test and final exam. The system records the students' query log according to their log-in identification, and it automatically records all the query logs of key words and which tool did the students use for each search key word.

3.5 Procedures Followed

The curriculum for the Corpus-assisted Translation Course was designed by the researcher to meet the needs of students undertaking English-majors and for the purpose of data collection in this study. The research lasted one semester starting from September 2011 till January 2012, which coincided with the teaching time for the Translation course. The whole process took 18 weeks, which included two weeks of holiday, and the class met for two hours every week. The procedures of both the traditional approach and the corpus-assisted approach will be addressed in the following sections, as well as the procedures for data collection.

3.5.1 Procedures for the Translation Module: Traditional Approach

The first half of the semester, ranging from weeks 1 to 9, was based on a textbook called "The Art of Translation" by Lai (2005) selected by the researcher. Since this part of the curriculum was designed to adopt a teacher-centred traditional translation approach, the course objective was to strengthen the students' translation skills from Chinese to English. The researcher, who was also the instructor of the module, did most of the teaching, which was similar to a Grammar Translation Approach.

In the second part of the book, Chapter 2 titled "Principles for Translating from Chinese into English" (Lai, 2005, pp. 157-223) was selected as the materials for the first half of the course. The curriculum followed the structure of the topics in the textbook and covered one topic each week. Due to the limited number of classes available in the course, only 7 units were selected and covered. The chosen units of translation skills included the following topics: Sentences without subjects, Multiple verbs, Chinese Passive voice, Compound sentences 1, Compound sentences 2, Prepositions, and Common translation mistakes. Week 1 consisted of an introduction

to the course and rules, introduction to corpus and collocation, explanations about the research and ethical issues, and a test of the students' translation competency.

Besides these topics of translation skills, collocation was also introduced and emphasized in the classes and translation practices. The students were trained to be aware of using appropriate collocation combinations since this is really important when the students are translating from Chinese into English. Apart from strengthening translation skills and collocation competency, the student participants were also required to undertake quizzes in collocation, in-class practice of translation and translation assignments. For more details of the curriculum, please refer to Appendix 10 for the course syllabus.

PowerPoint slides were compiled by the teacher based on the textbook contents, and were used to explain and demonstrate the translation skills covered in the textbook. The teacher did most of the teaching and the students listened and received knowledge of grammar rules and translation skills. They also had opportunities to practice the translation skills they had just acquired in the class by doing the translation exercises given by the teacher. There were usually two to three sentences that had similar sentence structures as the ones in the lesson. The students translated them and shared their sentences with their fellow classmates by writing their translated English sentences on the blackboard. Then, the teacher would review the sentences and discuss the problems of meaning equivalence, word choice and grammatical error in those sentences with the whole class. Students also had to do homework assignments by translating several sentences from Chinese into English, selected by the teacher from the textbook. In this part of the course, the main goal of the curriculum was learning the different categories of translation skills, translating from Chinese into English. However, the traditional teacher-centred approach does not allow the students much chance to discuss and share about what they have learned and what they still do not understand.

Since the textbook covers many translation skills and concepts in each topic unit, many students expressed the concern that it was a heavy load for them, to take in so much information within the two-hour class time. The classes were quite difficult for both the teacher and the students due to the time stress, and the teacher still needed to

save some time to allow the students to do some translation practice in class and review their translations as a class. The majority of the students stated in the midterm questionnaire that class time was too short and they only had very limited time to practice the translation skills that they had acquired. They wished there could be more time available for translation practice in the classes. The majority of them said that they wished they could have more class hours so they could have more time to practice and understand all the translation skills introduced and materials covered.

3.5.2 Procedures for the Translation Module: Corpus-assisted Approach

In the second part of the course, after the midterm examination, the student-centred corpus-assisted translation approach was implemented. Since this part of the course was based on a student-centred curriculum, the students were encouraged to speak up and share what they had learned and what they did not know about making enquiries in the corpus tools to assist them in translation. The purpose of adopting the student-centred approach in this study was to help the students construct knowledge by solving translation problems by themselves. There were eight weeks of classes between the midterm and final examination, i.e. from week 10 to week 17. However, two weeks of classes were taken up by extra-curricular activities. Therefore, there were only six weeks of classes with two hours each for the actual training in using corpus tools to help the students translate. The themes of training in each week are listed as the following:

Week 11: Introduce BNC (British National Corpus) & demonstrate using Tango
Week 12: University athletic meeting (No class)
Week 13: Demonstrate more enquiry skills in Tango
Week 14: Demonstrate making enquiries in TotalRecall
Week 15: Demonstrate how to make use of Tango and TotalRecall to assist translation
Week 16: Training of enquiry skills and strategies, e.g. use English/Chinese phrases to narrow down search results/have focused search
Week 17: Training of observing grammar patterns from the search results & strategies for solving translation problems

The teacher started the training by introducing what a corpus is and showed the

BNC website as an example to the students. The teacher then demonstrated using the Tango collocation concordancer because the majority of its collected data derives from the BNC. The teacher introduced the functions of Tango and showed how to make enquiries by selecting the part of speech and the collocation combinations, and then demonstrated how to find answers for the translation cloze test from the midterm examination. Then, the students were asked to do some hands-on practice by exploring Tango themselves and finding answers for the same test. The teacher walked around the classroom while the students were doing the practice, and asked students if they encountered any problems in their enquiries. If students raised questions about how to use Tango, the teacher always tried to guide the students to find answers themselves instead of giving the answers straightaway. Sometimes, the teacher would discuss questions raised by students with the class by asking if anyone knew the answer or could share about what they would do. Similar procedures were repeated again in the following class, week 13. However, the teacher added in-class sentence translation exercises and asked the students to try to use Tango to assist them to translate. Then, the teacher asked for volunteers to share their answers on the blackboard, and reviewed the translated texts with the class. The problems students encountered in the process of using Tango to assist them translate were also discussed in the class. (For more information on the translation exercises, see appendix 16.)

In the first two weeks of the training (Week 11 & 13), the teacher only talked about and demonstrated Tango. After the students were familiar with Tango, TotalRecall was introduced and demonstrated in the third and fourth week of training (Week 14 & 15). In Week 14, the teacher explained the functions on the TotalRecall interface and demonstrated how to make enquiries with the tool. The students could use either English or Chinese to make enquiries because TotalRecall is a bilingual concordancer. The teacher first taught the students to make a single phrase query, and then explained about using two phrases to make enquiries in order to narrow down the search results. In Week 15, the teacher demonstrated how to make use of the two corpus tools together to assist translation production, and started to let the students use both tools to help them translate. After the students did some hands-on practice using both TotalRecall and Tango to help them accomplish their in-class translation exercises, the teacher asked the students to work in pairs and discuss their

problems and check each other's translated sentences. After the discussions were over, the teacher asked the students to bring up any questions that they encountered during the query process. As stated before, the students were very much encouraged to speak up about their questions and problems encountered. When students raised their questions, the teacher would ask the whole class if anyone knew how to solve the problem. Through this kind of peer discussion and peer learning, the students gradually constructed their own corpus enquiry strategies and knowledge of translation skills.

In the last two weeks of training (Week 16 & 17), the focus shifted to how the students could make use of the corpus tools to help solve translation problems. The students were given translation tasks which they had to complete with assistance from TotalRecall and Tango. More corpus enquiry strategies were discussed in the classes, and the teacher also kept stimulating the students to come up with new enquiry strategies that had not been discussed in the classroom. Since the focus of the training was on forming abilities to solve translation problems independently, the teacher kept reminding the students that they needed to construct their own knowledge of corpus-assisted translation, and they needed to know how to find answers to solve translation problems on their own. The discussions became more lively in the last two weeks of class, and the students also became more confident in their corpus enquiry strategies and in the accuracy of their translation. The group interviews were conducted in week 17 after the classes finished. The majority of the students knew what they were doing in corpus-assisted translation, and believed that corpus-assisted translation was indeed very helpful to their learning of translation and in enhancing their learning attitudes. More details on the students' attitudes and feedback can be found in Chapter 4.

The student participants were asked to translate the given Chinese sentences into English. The type of translation activity that took place in the classroom was translator training. Therefore, the quality of the translation was much lower than that produced by professional translators. For more information on the translation activities and assignments in the course, please refer to Appendix 16 (In-class Translation Exercises) and Appendix 17 (Translation Assignments). Since the English competency of the students was at the intermediate level, their ability in

translating was quite limited when compared with students at a higher English competency level. As a result, the students had difficulty with grammar and sentence structure when they were translating the Chinese text into English.

The students were not competent enough to produce good quality English sentences in their translation, and it would be difficult to analyze the data collected if the sentences were poorly written with lots of mistakes. Therefore, the students were not asked to translate the Chinese sentences into complete sentences in English, but instead were asked to do a translation cloze test for the pre-test and post-test. In the tests, Chinese sentences and their English translations were given; the Chinese sentences had words or phrases underlined, with the equivalent words or phrases missing (as blank spaces) in the English translations. The students were asked to translate those (underlined) Chinese phrases to fill in the blanks in the English sentences, and the translated words or phrases had to fit into the English sentences both in terms of lexical choice and collocation combination.

To summarize, the design of the curriculum is to help the students get familiar with a corpus and with using the corpus tools—first Tango and then TotalRecall—and then train them to use the corpus tools to assist them to translate. The students are guided with enquiry skills demonstrated by the teacher and are then allowed to explore the corpus tools on their own. After they become familiar with using the corpus tools, the teacher then trains the students with enquiry skills to use the two corpus tools back and forth to find out ways to translate the Chinese words or phrases into English, and check the collocation combinations of the English equivalents for the translated text. The students are trained with corpus enquiry skills to assist them translate gradually, and are encouraged to discuss their enquiry strategies with each other. The teacher often asks the students to share voluntarily about how they explore the corpus tools step by step with all their fellow classmates. Through the process of hands-on practice and the stimulus of sharing with their fellow classmates, it is hoped that the students acquire new enquiry strategies to solve translation problems.

When the students are assigned with in-class practice translation tasks, the teacher would walk around in the classroom to ask the students if they have any

questions. If the students ask questions, the teacher usually would not answer the questions right away. Instead, she would ask the student some guiding questions and always tries to help the student think about some possible answers or solutions before she gives her suggestions or answers to the questions. If the student really has no idea about the solutions, the teacher sometimes would ask the whole class what they would do and call for volunteers to share their thoughts on how they would solve the translation problems. The purpose of doing so is to help the students develop their own ability to solve translation problems independently and inspire one another with different ways of solving translation problems with the corpus tools. With the training of the student-centred corpus-assisted translation approach, it is hoped that the students eventually would get to construct their own strategies in corpus-assisted translation.

3.6 Analysis of Data

For qualitative analysis, the data collected from the open-ended questions and student group interviews was analyzed. Students' responses to the open-ended questions were organized into several categories and analyzed. The interview recording was transcribed, coded, categorized and analyzed. There were twenty-five student participants who were group interviewed in total. Each student was assigned with a number after the transcription process, so that their responses are identified as S1, S2, etc. The responses from the student group interviews were color-coded into several categories, and relevant responses were selected for data analysis. Then these responses were further organized into several sub-categories, and translated into English.

For the quantitative data, the data from questionnaire responses and the pre-test and post-test answers was put into an Excel file to run tests with the SPSS program. The pre-test and post-test answers were coded according to the rubric as shown in Table 3-1. (More details on scoring rules are discussed in 4.1.2 "Analysis of the students' query logs and post-test answers".) Various tests were conducted according to the needs of analysis. (More details on the tests and results are reported in 4.3.1 "Improvements in the post-test grade".) All the data was sorted and analyzed according to the type of analysis needed. More details on the quantitative analyses

can be found in chapter 4.

Table 3-1 Rubric for scoring the answers in the pre-test and post-test

Response Score	Response Code
0.0	Wrong choice
0.5	Acceptable choice, but wrong form and spelling
1.0	Acceptable choice, but wrong form
1.5	Acceptable choice, but wrong spelling
2.0	Acceptable choice (not the best equivalence)
2.5	Correct choice, but wrong form and spelling
3.0	Correct choice, but wrong form
3.5	Correct choice, but wrong spelling
4.0	Correct choice
Missing	No response (Answer missing)
Total	

3.7 Piloting the Research

Before conducting research, it is advisable to pilot the research procedures by running through the entire process with a small group of participants; a lot of valuable information can be found in the process of piloting, which allows amendments to be made in the actual study (Christensen, Johnson, & Turner, 2011, p. 277). In the current study, the translation curriculum was run through with the pilot group a few weeks prior to the implementation with the research group (see 3.2.1). The researcher found the pilot study very useful for finding improvements in how the course could be taught, and became more confident about what she was doing when she taught the curriculum with the research group. For example, the researcher observed students' reactions to the curriculum and how the module went, in the pilot study. Then, the curriculum and content of the course were adjusted and revised where they were not clear enough.

The piloting of the questionnaires and students' online feedback was equally important. Although the students in the pilot group did not raise any concerns regarding the questionnaires, it was still worth piloting them before using them with the research group. The researcher could make sure that the items in the questionnaires were clearly expressed and that the students could understand the questions without any problem. Through piloting the questionnaires, the researcher could make sure that they were easy to understand.

Also, the piloting procedures for the students' online feedback also helped the researcher to have a better understanding of how to encourage the students to share their feedback online. When the researcher was trying out this part of the research instrument with the pilot group, the students did not post any thoughts or feedback online. The researcher observed this problem, and learned that she needed to find ways to encourage the students to share their thoughts and feedback on the online discussion forum. When the researcher was teaching the students in the research group, she tried to ask the students to post their learning feedback or thoughts before the end of the class, and it was more successful. Many students shared their thoughts and feedback on the discussion forum and that helped them to think about their learning process and learning problems. The teacher also found out about the problems that the students were facing in their learning of corpus-assisted translation. As a result, piloting the research was very helpful in the actual implementation of the research with the research group, and helped the research to be smoother and more successful.

3.8 Triangulation of Data Collection Methods

Cohen, Manion and Morrison (2011) define triangulation as using two or more data collection methods to investigate certain aspects of human conduct. Cohen, Manion and Morrison argue that triangulation in the social sciences endeavours to study human conduct from multiple angles, analyzing both qualitative and quantitative data in order to fully interpret the complexities of human behaviour (p. 195). Patton (2002) also contends that triangulation reinforces research by applying several methods concurrently and using various sources of data involving qualitative and quantitative methods (p. 247). Patton further argues that a research question can

be elaborated on by combining various selections of methods. Relying on one research method can lead to the research errors of that specific method (p. 248). In this research, five instruments were adopted to triangulate the results of the data, namely questionnaires, student group interviews, students' online feedback, pre-test and post-test, and query log analysis. These data collection methods help to verify the results of the study by providing data from different perspectives.

Concluding Remarks

The research design, methodology and procedures for undertaking the study have been discussed in this chapter. In the next chapter, the data collected by the nominated research methods and procedures will be analyzed and presented with tables, figures, and descriptions to answer the five research questions.

Chapter 4 Results

This research aims to explore two perspectives regarding the implementation of a student-centred corpus-assisted translation approach, namely, how the students use corpus to learn translation and whether the approach is helpful to their learning attitudes. The results of the study are based on 29 students undertaking English-majors from a private university in Northern Taiwan. Both qualitative and quantitative methods are applied to analyze the collected data of the five research instruments for the study. Evidence of how students make use of a corpus to help them translate and the students' perceptions and attitudes towards the approach will be reported in accordance with the structure of the five research questions. Tables and figures will also be used to illustrate the findings of the study.

4.1 How Students Make Use of TotalRecall and Tango to Help them Translate

In the literature review, the theories of constructivism, scaffolding, metacognitive strategies, problem-based learning, and learner autonomy were discussed in regard to how they are related to the student-centred corpus-assisted translation approach. When the students learn to use corpus tools to help them solve translation problems, they are constructing their own knowledge of corpus-assisted translation skills with the scaffolding provided by the instructor, which is the training of enquiry strategies. Meanwhile, they are developing their metacognitive strategies, as well as becoming more independent in their learning. The results of how the students make use of the corpus tools, TotalRecall and Tango, to help them translate will be presented to answer the first research question—"Which of the two corpora tools (TotalRecall and Tango) do the students think is more useful to translation? Why do they think it is particularly useful? What use do the students make of TotalRecall and Tango in Translation tasks?"

4.1.1 Which Tool More Useful to Translation and Why

In the final questionnaire students were asked whether they thought TotalRecall or Tango was more useful to translation. They were asked to describe the frequency ratio of using the two corpus tools when they make key word searches to help them

translate. For example, if a student made ten key word searches in the corpus tools when they were undertaking a translation task, of which they used TotalRecall eight times, and Tango two times, the resulting frequency ratio is 8:2. Some of the students did not understand the question descriptions completely, and they answered the question with ratios such as 5:1 or 10:1, etc. However, the results still demonstrate an obvious difference, which was that the students prefer using TotalRecall much more than Tango. The results are shown in Table 4-1.

Table 4-1 Ratio of enquiries for TotalRecall and Tango

TotalRecall: Tango	Respondents (N)
6:4	1
7:3	10
8:2	7
9:1	2
Sub-total	20
Other responses	
2:1	1
3:1	1
4:2	1
5:1	1
10:1	1
10:2	1
10:3	1
Sub-total	7
Total	27

Which Tool do the Students Prefer?

Twenty-seven valid final questionnaires were collected for the study. Of the twenty-seven students who responded to this open question, only one student said the ratio of using TotalRecall versus Tango is 6:4 (c.f. Table 4-1), which is a close tie between the two corpus tools. The remaining twenty-six students expressed that they

used TotalRecall much more than Tango, and the results show that the number of TotalRecall enquiries is always at least twice as many as Tango enquiries. It can be observed that the frequency of using Tango is much lower than TotalRecall in terms of the ratio of enquiry, so the students prefer to use TotalRecall rather than Tango. The reasons for this phenomenon can be explained with the data from another question in the same questionnaire.

Why do Most Students Like TotalRecall Better?

The students were asked to express their level of preference towards the two corpus tools. All twenty-seven students responded that they liked TotalRecall better, among which, six of the students said they also liked to use Tango. In this question, some of the students responded with more than one answer why they like TotalRecall better. As a result, their responses match with more than one category in Table 4-2. Consequently, the total number of responses exceeded the total number of students. The results are shown in Table 4-2.

Table 4-2 Reasons that most students like TotalRecall better

Reasons	Like it better	Use it more often	Easier to use	More examples	Availability of Chinese	Total
Responses	9	4	8	4	7	32
Students	S1, S6, S15, S17, S21, S22, S23, S27, S28	S5, S11, S18, S19	S2, S10, S12, S16, S20, S24, S25, S29	S7, S8, S9, S26	S2, S5, S6, S13, S14, S17, S18	

The reasons why students like TotalRecall better than Tango were organized into five categories as seen in Table 4-2. First of all, of the twenty-seven students who responded to this question, there were nine responses that stated they "Like TotalRecall better". S23 explained, "I like to use TotalRecall because it is easier to find the information that I need in the query results." The other eight students simply

stated that they liked TotalRecall better without giving many specific reasons. Secondly, there were four responses that remarked that the students "Use it (TotalRecall) more often." S18 stated "I am more used to enquiring in TotalRecall." Thirdly, eight students mentioned that TotalRecall is "Easier to use," some of whom explained the reasons why they think TotalRecall is easier to use. S2 said, "It is more convenient to make enquiries because TotalRecall has Chinese in the system." S24 stated, "It is more convenient to make enquiries in TotalRecall, and it is also faster to get results." S25 explained, "I do not need to distinguish the part of speech when I make enquiries. I key in the search term, and example sentences come up immediately." S20 mentioned, "I can use any word or phrase to make enquiries in TotalRecall." S16 stated, "The results of enquiries from TotalRecall fit my needs better."

Fourthly, four students said that there were "More examples" in the enquiry results in TotalRecall. S8 explained that "TotalRecall is quite good to use because there is a lot of information available." S9 stated that "It is easy to check vocabulary in TotalRecall." Finally, seven students said they prefer TotalRecall because of the "Availability of Chinese" in the system. S6 specified, "I like TotalRecall better because the bilingual alignments help me to find appropriate words to use." S13 remarked, "It is convenient to make Chinese enquiries in TotalRecall." S17 said, "I really like TotalRecall, I can find information quickly with Chinese enquiries especially when I was taking an exam."

All the five reasons and all the quotations well illustrate why the students like to use TotalRecall better than Tango. The availability of Chinese in TotalRecall seems to be a dominant reason why the students prefer using TotalRecall to Tango because it shows the results bilingually, which is very useful to students of intermediate level. The Chinese component in TotalRecall also serves as scaffolding for the students since their command of English still needs to be further developed. The Chinese translation of the English sentences in the bilingual alignment strengthens the students' comprehension of the English query results. Therefore, the major reasons why students like TotalRecall better is because it shows Chinese results, and they can make enquiries with either Chinese or English key words. Consequently, it is easier and more convenient for them to use, and they like it better and use it more often.

The reasons why they did not like to use Tango will be discussed in the next part (4.2) of the results.

4.1.2 Analysis of the Students' Query Logs and Post-test Answers

Table 4-3 Students' query logs and their answers for question 10 in the post-test

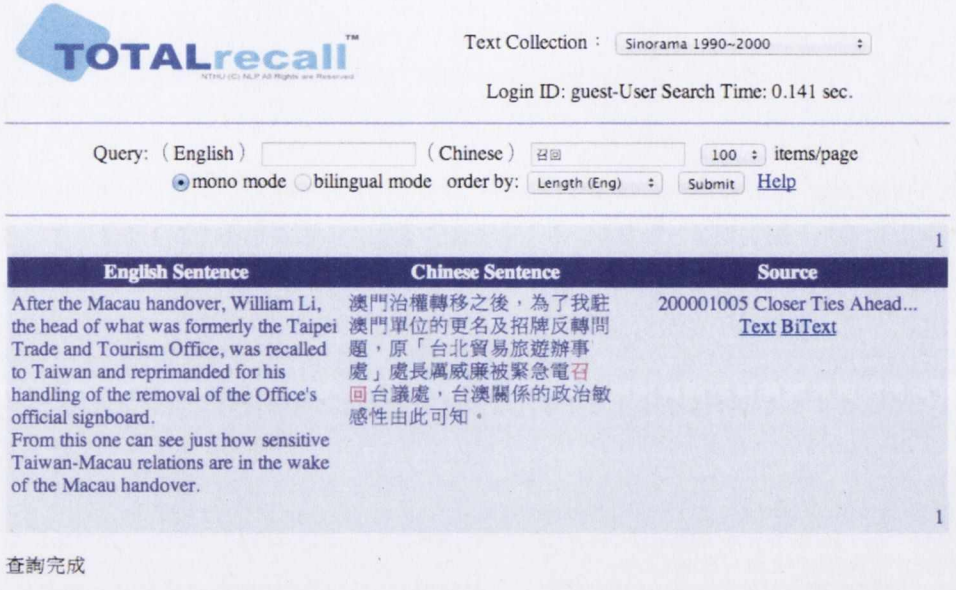
Level	Student Code	Key Word	Tool	Student Response	Score
G1	S12	召回(Zhao-Hui)	TotalRecall	recalled	3
G1	S21	召回(Zhao-Hui)	TotalRecall	removal	1
G1	S15	召回(Zhao-Hui)	TotalRecall	recalling	3
G1	S9	召回(Zhao-Hui)	TotalRecall	removal	1
G1	S23	召回(Zhao-Hui)	TotalRecall	return	0
G1	S2	召回(Zhao-Hui)	TotalRecall	N/A	0
G2	S27	召回(Zhao-Hui)	TotalRecall	recall	4
G2	S29	召回(Zhao-Hui)	TotalRecall and Tango	remove	2
G2	S25	召回(Zhao-Hui)	Tango	recall	4
G2	S10	召回(Zhao-Hui)	TotalRecall	recall	4
G2	S26	召回(Zhao-Hui)	TotalRecall	recall	4
G2	S5	召回(Zhao-Hui)	TotalRecall	return	0
G2	S20	召回(Zhao-Hui)	TotalRecall	recall	4
G3	S11	召回(Zhao-Hui)	TotalRecall	recall	4
G3	S13	召回(Zhao-Hui)	TotalRecall	handover	0
G3	S16	召回(Zhao-Hui)	TotalRecall	remove	2
G3	S17	召回(Zhao-Hui)	TotalRecall	recall	4
G3	S8	召回(Zhao-Hui)	TotalRecall	recall	4
G3	S14	召回(Zhao-Hui)	TotalRecall	retrieve	2
G3	S22	召回(Zhao-Hui)	TotalRecall	recycle	0

In this analysis, the students' query logs and their answers to question 10 in the post-test were compared and analyzed in order to find out how the students make use of the corpus tools. Question 10 was determined as the most difficult question according to the score attainment by the students in the pre-test. The level of difficulty for each of the questions was measured by the score sum of all the 29 students for each question. More information about the level of difficulty for all the pre-test questions can be found in the first table in Appendix 11.

Observations on all the query logs for question 10 show that the most common Chinese key word the students used to make enquiries was "召回(Zhao-Hui)", which is equivalent in meaning to "recall" in English. All the query logs containing this Chinese key word were extracted to make comparisons with the students' responses in the post-test as shown in Table 4-3. The analyses of their responses were organized into three groups according to their level of translation competency as G1, G2, and G3. G1 is the bottom 33% of the students, G2 is the medium 33%, and G3 is the top 33% of the students, as listed in Table 4-18 in 4.3.1.

There are 10 students in group G1, but the query logs of four of the students (S4, S19, S24, S28) were missing in the website for the post-test. As a result, there will only be data of six students in this analysis. There are nine students in group G2, but one of the students (S6) did not use the designated key word "召回(Zhao-Hui)" to make searches, and another student (S3) typed a wrong Chinese character of the above key word to make the search, which turned out to be no results. Consequently, there are only seven students who have valid data for this analysis. There are ten students in group G3, but three of the students (S1, S7, S18) did not use the designated key word "召回(Zhao-Hui)" to enquire in the corpus. Therefore, there is only valid data for seven students whose query logs were analyzed. Apart from the students who did not have query logs available, all the other students used TotalRecall to enquire about this question. The query snapshot of TotalRecall enquiring about the Chinese key word "召回(Zhao-Hui)" is provided in Snapshot 4-1.

Snapshot 4-1 TotalRecall query snapshot of the key word "召回(Zhao-Hui)"



Total Records found : 1

Analysis of G1

For students of G1, they have major problems with grammar. Among the six students whose query logs had been recorded, four of them made grammatical mistakes by using the wrong forms in their responses, and received one point (S21, S9) and three points (S12, S15) of scores out of four respectively, as in Table 4-3. The other two students received zero points because one of them (S23) answered the question with a wrong choice of word, and the other one (S2) did not give a response to the question. Among the four students who made grammatical mistakes, two of them could figure out the correct translation of the Chinese key word "召回 (Zhao-Hui)" in the bilingual word alignment from the corpus search results, and put the equivalent English translation "recall" in the answer. However, they did not answer the question with the correct verb tense for the context. S12 wrote "recalled", and S15 wrote "recalling". The other two students made wrong judgments of word alignment in the translation, and chose "remove" as the equivalent translation from the query result. However, they still receive a lower score of one point because "remove" happens to be an acceptable choice of answer for this question by

coincidence.

The results demonstrate that the students of G1 level have poor ability in grammar and word alignment. Only one third of the students, two out of six, recognized the correct translation in the bilingual alignment. All six students of G1 level were unable to use the correct grammatical word form to answer the question. Therefore, based on the results of question 10, it can be assumed that with a poorer level of translation ability, the G1 students can sometimes make correct judgments on bilingual alignments, but could barely choose the correct word form that is required in the question of the translation cloze test. The average score in question 10 for the six selected G1 students is 1.33 out of 4, and the accuracy rate for the question is 33.3%, which is the total score of question 10 for the six students divided by the full score (8/24=33.3%).

Analysis of G2

For students of G2, they do not have problems with grammar in the results of this selected question. All the seven students whose query logs had been recorded used correct word forms in their answers, and received two points and four points respectively, as in Table 4-3. Among the seven students, five of them (S27, S25, S10, S26, S20) answered with correct word choice and correct form and therefore received four points. Another student (S29) used an acceptable choice of word with correct word form and received two points. The other student (S5) responded with a wrong choice of word for the answer and received zero points though with correct word form. Five of the seven students could figure out the correct translation of the Chinese key word "召回(Zhao-Hui)" in the bilingual word alignment from the corpus search results, and answer the question with the equivalent English translation "recall" with its correct verb form for the question context. The other student made wrong judgments of word alignment in the translation, and chose "remove" as the equivalent translation from the query result. However, the student still received a lower score because "remove" happens to be an acceptable choice of answer as explained in the analysis of G1. The student used the correct verb form for the answer, and received two points for writing down "remove".

The results show that the students of G2 level have a better command of grammar and word alignment though they still make wrong judgments occasionally. Besides, all the seven G2 students used the correct grammatical word form to answer the question based on their responses to question 10. It can be assumed that the majority of the medium level students can not only make correct judgments of bilingual word alignments, but can also choose the correct word form to be filled in the space of the questions in the translation cloze test. The average score of question 10 for the seven selected G2 students is 3.14 out of 4, and the accuracy rate for the question is 78.6%, which is the total score of question 10 for the seven students divided by the full score (26/32=78.6%).

Analysis of G3

For students of G3, they also do not have grammatical problems based on the results of this selected question. However, some of the students turned out to have problems with word choice. All the seven students whose query logs had been recorded used correct word forms in their answers, and received two points and four points respectively, as in Table 4-3. Among the seven students, three of them (S11, S17, S8) answered with correct word choice and correct form and therefore received four points. Another two student (S16, S14) used an acceptable choice of words with correct word form and received two points. The other two students (S13, S22) responded with the wrong choice of word for the answer and received zero points though with correct word form.

Three of the seven students could figure out the correct translation of the Chinese key word "召回(Zhao-Hui)" in the bilingual word alignment from the corpus search results, and answer the question with the equivalent English translation "recall" with its correct verb form for the question context. Another student (S16) made the wrong judgment of word alignment in the translation, and chose "remove" as the equivalent translation from the query result. However, the student still received a lower score because "remove" happens to be an acceptable choice of answer as explained in the analysis of G1. The student used the correct verb form for the answer, and received two points for writing down "remove". Another student (S14) responded with the correct word form of "retrieve" which is an acceptable

word choice for the answer, and received two points. The other two students (S13, S22) responded with "handover" and "recycle" which are wrong choices of word for the answer. Though they answered with the correct word form, they still received zero points.

All the seven G3 students used the correct grammatical word form to answer the question based on the results of question 10. The results show that the students of G3 level have a better command of grammar than the G2 students, but their ability in word alignment was poorer than G2, and they sometimes make mistakes. The ability of word choice and word alignment of the G3 students is therefore poorer than G2, but better than G1. The average score of question 10 for the seven selected G3 students is 2.29 out of 4, and the accuracy rate for the question is 57.1%, which is the total score of the seven students divided by the full score of question 10 (16/28=57.1%).

It can be seen how the corpus tools help students of different levels solve translation problems by providing a reference translation in the bilingual alignment, as well as the information on grammar use from the context of the query results. It seems that students of the G2 level benefited most from the corpus tools and had the highest accuracy rate for question 10.

However, this analysis only provides samples of results based on one question in the post-test. Due to the limitation of time, only question 10, the most difficult question in the pre-test, was selected for analysis in this research. It would be better if more questions could be analyzed to support the argument; however, the analysis of query logs and post-test answers is extremely time-consuming. As a result, caution should be taken when generalizing the results of this analysis. Appendix 13 also includes an explanation of the scoring rubric for question 10 in the pre-test and post-test.

Comparison of All the Responses in the Pre-test and Post-test

Table 4-4 Comparison of responses for question 10 in pre-test and post-test

Question 10			
Question: Because of the engine problem in the new vans, the auto company decided to ____recall____ them from the market. **Chinese translation:**由於新款休旅車的引擎問題，這家汽車公司決定要將它們從市場上召回。			
Coded Response	Pre-test	Post-test	Response Code
0.0	16	6	wrong choice
0.5			acceptable choice, but wrong form and spelling
1.0		2	acceptable choice, but wrong form
1.5			acceptable choice, but wrong spelling
2.0		4	acceptable choice (not the best equivalence)
2.5			correct choice, but wrong form and spelling
3.0		2	correct choice, but wrong form
3.5			correct choice, but wrong spelling
4.0	6	14	correct choice
Missing	7	1	no response
Total	29	29	

A comparison of all the responses for question 10 in the pre-test and post-test is made as in Table 4-4. Regardless of the different levels of students, a comparison was made to compare the improvements made by all the twenty-nine students after they made use of the corpus tools to help them translate. The coded responses represent the scores that the students receive in both tests. The grade allocation in the pre-test is quite extreme and falls on the two ends of the grade scale. Sixteen students, more than half of the students, wrongly answered the question and received a zero for question 10 in the pre-test. Seven students left the question blank, and had a

missing answer. Only six students answered the question correctly and received four points.

However, after the students used corpus tools to help them translate, significant improvements can be observed from the response allocation and the score attainment in the post-test. Based on the score allocation, it can be observed that the number of accurate responses to the question had increased substantially. Students who answered the question with wrong answers and received zero points decreased from sixteen to six students. Corpus tools also encouraged the students to try answering the question because missing answers decreased from seven to one student. Students who answered correctly and received four points increased from six to fourteen students. There are also eight students who answered the question partially correctly and received one point, two points, and three points respectively.

Based on an overall observation, most of the students, eighteen out of twenty-nine students, were able to fill in the correct form of the word in the answer (score 2.0 and 4.0) regardless of correct choice or acceptable choice of word in the post-test. Only four students out of twenty-nine filled in the wrong word form (score 1.0 and 3.0) regardless of correct or acceptable choices. None of the students had misspelling in their answers for this question (score 3.5, 2.5, 1.5, 0.5).

Therefore, the results show that corpus tools had assisted the students to solve the translation problem and helped them to figure out the correct word choice, word form and spelling of the answers. The mean score in the pre-test was 1.1, and became 2.6 in the post-test. The score sum of question 10 of all the twenty-nine students in the pre-test was twenty-four, and increased to seventy-two in the post-test. Consequently, enquiring with the corpus tools helped the students to increase their score attainment in the post-test. Further information on the mean and score sum of each of the twenty-five questions in the pre-test, post-test, and a comparison of the two tests can be found in the tables in Appendix 12.

4.1.3 Analysis of Students' Query Strategies

In this part of the analyses, comparisons will be made to investigate the relationships between the students' query strategies and test scores, as well as the number of query searches and test scores. The purpose of the analyses is to find out whether the more query strategies the students apply, or the more query searches the students make, will result in higher score attainments in the post-test. Based on the query logs in the collected data, the query strategies applied by the students are organized into five categories according to the type of key words they used. The five categories are single Chinese phrase using TotalRecall, combination of Chinese phrases using TotalRecall, English key word using TotalRecall, English collocation using Tango, and Chinese key word using Tango – see Table 4-5. The students who did not use Tango at all are also coded to provide additional information. The query logs were then coded into numbers accordingly and analyzed by the program of SPSS.

Table 4-5 Coding of query strategies

Strategy Coding	Query Strategies
1	Single Chinese phrase using TotalRecall
2	Combination of Chinese phrases using TotalRecall
3	English key word using TotalRecall
4	English collocation using Tango
5	Chinese key word using Tango
0	Did not use Tango

Table 4-6 Comparison of strategies, average score, and average number of enquiries

Number of Strategies	Number of people	Average Number of Enquiries	Average Post-test Score
1	1	4.0	82.0
2	3	19.0	78.7
3	12	23.2	79.8
4	5	30	81.6
5	4	51	75.5
Total	25		

The results of the number of query strategies, average post-test score, and average number of enquiries were analyzed with SPSS and the results are shown in Table 4-6. There is only one student (S1) who used the minimal number of strategies and the minimal number of enquiries to enquire with the corpus tools among all the groups. S1 only used strategy 4 (English collocation using Tango) to make four enquiries, and S1's average post-test score was eighty-two, which is the highest score among all the five groups. (This student was in group G3, the higher level group.) For the students who used two, three, four strategies, their average score gets a little higher as they apply more strategies. The students who used all five strategies also made the maximum number of enquiries on average, fifty-one times each student, but turned out to have the lowest average score among all groups, a score of 75.5. Some tendencies could be found for the students who used two to four strategies, but the two groups of students who used one and five strategies are two opposite extreme exceptions. Therefore, there is no certain rule between the number of query strategies and test scores based on the collected results.

Regarding the relationships between the number of query searches and the average test scores, there is also an increasing tendency for the students who applied two, three, four kinds of strategies. The bigger number of enquiries result in higher average post-test scores as shown in Table 4-6. The results of the relationships between the number of query searches and test scores show exactly the same tendency as the number of query strategies and post-test scores.

Another analysis is also made to compare the relationships between the average number of strategies, average number of enquiries, and their post-test score from a different perspective. This time the students are grouped according to their level of translation competency. The results in Table 4-7 show that the average number of strategies used by the students of the three levels are in a small range between three and four. It means the majority of the students would use several different query strategies to help them translate. The students of G3 level used 3.0 strategies, which is less than the G1 lower level (3.5 strategies) and G2 medium level students (3.56 strategies). The number of strategies applied by the G1 and G2 students are really close, as are their post-test scores. The G3 students used the least number of strategies, but had the highest post-test score, and this is much higher than for G1

and G2 students.

Table 4-7 Average number of strategies, enquiries, and post-test score

Level	Valid Sample Number (N)	Average Number of Strategies	Average Number of Enquiries	Average Post-test Score
G1	6	3.50	30	73.9
G2	9	3.56	28	76.2
G3	10	3.00	26	85.7

Note: There were originally ten students in the G1 group, but the query logs of four of the students were missing in the system. Therefore, the valid sample number is only six students in the G1 group.

The results in Table 4-7 also show that the average number of enquiries and the average post-test score are following an inverse ratio. The more enquiry searches the students made, the lower the average post-test score they receive (G1 students); the less searches, the higher the post-test score (G3 students). The tendency is that the fewer query searches the students made resulted in higher post-test scores.

The assumptions made in the beginning of the 4.1.3 section is "whether the more query strategies the students apply, or the more query searches the students make, will result in higher score attainments in the post-test." The first analysis (Table 4-6) in this section shows that there is no certain rule between the number of query strategies and test scores based on the results. The findings of the second analysis (Table 4-7) prove that the fewer query searches the students made resulted in higher post-test scores, which overturns the second assumption.

Conclusion for 4.1

In the analyses of 4.1, we have looked into how students make use of TotalRecall and Tango in their translation tasks regarding the following three aspects: which tool is more useful to translation and why, analysis of the students' query logs and post-test answers, analysis of students' enquiry strategies. In the next part, the

focus of the analyses will be on the difficulties and problems the students encounter in the process of making use of the corpus tools to help them translate.

4.2 Difficulties and Problems the Students Encounter in Corpus-assisted Translation

For all the student participants, corpus-assisted translation is something completely new to them. They started learning from scratch how to use corpus tools to help them translate. As a result, various problems and difficulties may occur in the process. In this part, these problems and difficulties are the focus of the analyses, and the results will be triangulated by the data from the questionnaires, pre-test and post-test, query logs and group interviews. The findings answer the second research question: "What are the difficulties and problems students encounter when using corpus tools to assist them in translating?" The analyses will be investigated from the following three perspectives: problems with TotalRecall and Tango, score distribution and error analysis of the test responses, and students' perceived difficulties and problems.

4.2.1 Problems with TotalRecall and Tango

The problems with the corpus tools, TotalRecall and Tango, are investigated by looking at the students' responses in the final questionnaires. The students were asked to explain the pros and cons of TotalRecall and Tango respectively. For this analysis, the problems that the students encountered when using the corpus tools will be analyzed. The problems with TotalRecall will be discussed first, then Tango.

Problems with TotalRecall

The problems with TotalRecall are organized into six categories as shown in Table 4-8.

Table 4-8 Problems with TotalRecall

Problems with TotalRecall	Insufficient data	No keyword highlight	No collocation analysis	Not user friendly	No problem found	No response	Total
Responses	4	6	5	5	2	5	27
Students	S7, S13, S15, S17	S6, S9, S14, S20, S28, S29	S8, S16, S18, S23, S24	S10, S11, S19, S25, S26	S2, S21	S1, S5, S12, S22, S27	

Problems with Tango

The problems with Tango were organized into six categories as shown in Table 4-9. In this question, several of the students' responses cover two categories, and they appear in more than one category. Therefore, the total responses in Table 4-9 exceed the total number of questionnaires collected.

Table 4-9 Problems with Tango

Problems with Tango	Insufficient query option	System often freezes	Not easy to make enquiries	Insufficient data	Lack of bilingual alignment	No response	Total
Responses	8	5	5	7	2	3	30
Students	S9, S10, S12, S15, S20, S21, S25, S28	S2, S5, S17, S18, S19	S2, S13, S16, S23, S24	S7, S8, S11, S17, S23, S26, S27	S6, S14	S1, S22, S29	

Some of the problems that appear in TotalRecall also appear in Tango. Four students stated that there is insufficient data in TotalRecall, whereas seven students mentioned the same problem with Tango. Five students responded that they think TotalRecall is not user friendly, while five students also said they think it is not easy to make enquiries in Tango. No keyword highlighted and no collocation analysis

were non user friendly features of TotalRecall . However, two students responded that they think there is not any problem with TotalRecall. For Tango, students responded that there are insufficient query options for them to select the parts of speech about which they want to enquire, there is a lack of bilingual alignment , and the system often freezes .

4.2.2 Score Distribution and Error Analysis of the Test Responses

In this part of the analysis, a comparison of score distribution to all the test questions in the pre-test and post-test was made in order to find out the kind of difficulties the students have when making use of the corpus tools. In Table 4-10, the frequency and percentage of the score distribution is listed for comparison between the pre-test and post-test, as is the difference in percentage and the improvement rates.

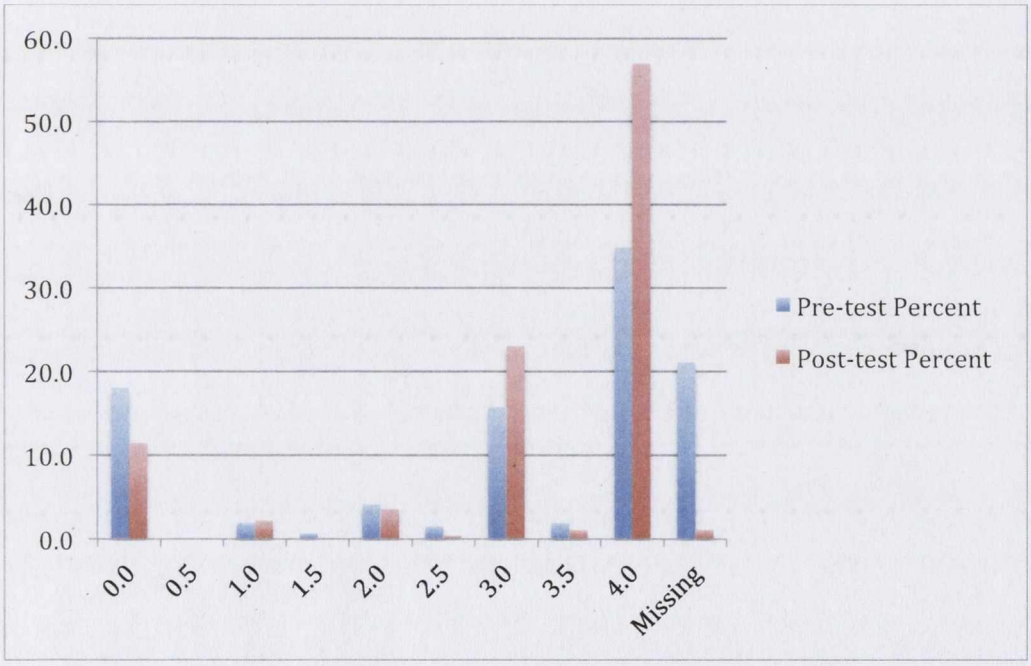
Table 4-10 Distribution of Response Scores and Improvements in the Pre-test and Post-test

Response Score	Pre-test Frequency	Pre-test Percent	Post-test Frequency	Post-test Percent	Difference %	Improve-ment Rate
0	131	18.1%	83	11.4%	-6.6	-37%
0.5	0	0%	0	0%	0.0	0%
1.0	14	1.9%	16	2.2%	0.3	14%
1.5	5	0.7%	1	0.1%	-0.6	-80%
2.0	30	4.1%	26	3.6%	-0.6	-13%
2.5	11	1.5%	3	0.4%	-1.1	-73%
3.0	114	15.7%	167	23.0%	7.3	46%
3.5	14	1.9%	8	1.1%	-0.8	-43%
4.0	253	34.9%	413	57.0%	22.1	63%
Missing	153	21.1%	8	1.1%	-20.0	-95%
Total	725	100%	725	100%		

It is obvious that there is a sharp decrease for scores of 0 and missing answers in their frequencies. In contrast, there is a big increase for scores of 3.0 and 4.0 in frequency. These increases and decreases both show improvements of the students in their performances in the post-test. More details on improvements will be discussed in 4.3. However, there is something interesting for discussion for the improvements of score 3.0 from 114 (15.7%) responses in the pre-test to 167 (23%) in the post-test. There is a difference of 7.3% in percentage, and the improvement rate for the frequency was 46%.

Score 3.0 represents that the students used the correct word, but chose the wrong grammatical form in their answers. As shown in Figure 4-1, there is a big number of students who had missing answers in the pre-test, but the number decreased substantially in the post-test after the corpus tools are available.

Figure 4-1 Comparison of response score distribution for the pre-test and post-test



The students were motivated to find references and fill out the answers in the post-test with the help from enquiring in the corpus tools. Some of the student participants (S4, S12, S16, S18, S24) responded in the group interviews that making enquiries in the corpus tools about their translation problems helped to increase their

willingness in learning translation as reported in 4.5.2. However, they still have problems with grammar use, and consequently the frequency of score 3.0 remained high in the post-test.

In 4.1.2, the results of "Analysis of the students' query logs and post-test answers" triangulate with the results in this section that the students do have problems with grammar. The error analysis on the students' query logs and post-test answers reports the problems faced by the G1, G2, and G3 levels of students in corpus-assisted translation respectively. The results show that students of the three levels have problems with grammar and choosing the correct word in the bilingual alignment from the query results to some extent. Based on the selected data, students of the lower level (G1) had more problems with grammar, while the students of the intermediate (G2) and higher level (G3) had little problem with grammar comparatively.

In conclusion, the results show that the students have problems with grammar and difficulties in making correct judgments for word choice in the bilingual alignments.

Table 4-11 Response score distribution for the pre-test and post-test

Response Score	Pre-test Percent	Post-test Percent
0.0	18.1%	11.4%
0.5	0%	0%
1.0	1.9%	2.2%
1.5	0.7%	0.1%
2.0	4.1%	3.6%
2.5	1.5%	0.4%
3.0	15.7%	23.0%
3.5	1.9%	1.1%
4.0	34.9%	57.0%
Missing	21.1%	1.1%
Total	100%	100%

Table 4-12 Summary of score distribution for the pre-test and post-test

Score	Pre-test Frequency Sum	Pre-test Percent Sum	Post-test Frequency Sum	Post-test Percent Sum
0 & Missing	284	39.0%	91	12.6%
0.5~2 points	49	7.0%	43	5.9%
2.5~4 points	392	54.1%	591	81.5%
Total	725	100%	725	100%

4.2.3 Students' Perceived Difficulties and Problems

In the previous two sections, evidence has been found regarding the problems with TotalRecall and Tango, and the score distribution and error analysis of the test responses. In this part of the analysis, the students' perceived difficulties and problems in the process of enquiry are investigated by analyzing the students' responses from the group interviews. Responses relevant to this topic throughout the interview were selected, coded and organized into eight categories as shown in Table 4-13.

Table 4-13 Students' perceived difficulties and problems in corpus-assisted translation

Problems	Not user friendly	Lack of keyword highlight	System often freezes	Cannot find desired information	Insufficient query option	Insufficient Chinese data	Problem with word use and constructing sentence	Other problems	Total
Responses	2	2	6	8	8	3	1	4	34
Students	S16, S23	S6, S8	S3, S6, S9, S15, S16, S17	S6, S7, S8, S13, S15, S16, S17, S19	S4, S6, S8, S9, S11, S13, S17, S20	S2, S8, S16	S13	S16, S17, S21, S24	
Appeared in questionnaire responses	Yes	Yes	Yes	Yes	Yes				

The problems students encountered in corpus-assisted translation include: not user friendly, lack of keyword highlight, system often freezes, cannot find desired information, insufficient query option, insufficient Chinese data, problem with word use and constructing sentence, and other problems. Five of the eight categories also appeared in the analysis of problems with TotalRecall and Tango based on the questionnaire data. The data from the questionnaires and group interviews shows similar problems, and triangulates the results of the students' difficulties and problems in corpus-assisted translation. Most of the questionnaire responses are short answers, while the discussion of the problems in the group interviews are in-depth discussions and provide more information on the students' views of the problems they had. The responses are summarized and presented in the following paragraphs.

The repeated five problems will be presented first, then the other three categories of problems. First of all, two students mentioned that the corpus tool, Tango, is not user friendly. One of them (S16) thinks Tango is too difficult for them to make enquiries, and the system freezes easily. Therefore, the student said they did not like to use it. The other student (S23) responded that Tango is more difficult to make enquiries in, so they would not want to use it. Secondly, two students mentioned that there is a lack of bilingual alignment in TotalRecall. S6 said Tango highlights both the Chinese and English key words in the bilingual alignment, but TotalRecall only highlights the Chinese key word in the bilingual alignment if you use Chinese to make the enquiry. However, it does not highlight the equivalent English key word in the bilingual results. In fact, either Chinese or English can be used to make the enquiries, and the key words of both languages will be highlighted as long as one enquires in the bilingual corpus, Sinorama, in Tango. However, if one enquires in the monolingual corpus, British National Corpus, in Tango, only English results with key words highlighted will be provided in the results.

Thirdly, six students responded that the system often freezes when they are using it. S6 and S16 said the web page runs really slowly, and five students complained that Tango often freezes after they sent the request for query. Fourthly, seven students said they cannot find the desired information easily. S8 remarked that they think TotalRecall provides more query results, but they sometimes cannot find any information in Tango. S19 responded that they cannot find what they want in

Tango, and they always use TotalRecall instead. S6 responded that they sometimes cannot find the word they want even though they keyed in the adjective that comes before the noun, or the noun that follows that adjective in the system, the results still do not contain the word that they are looking for. S7 also explained that they cannot find the desired information anyhow, and had to use a different word, such as a synonym, to enquire again. S7 further commented that the reason is probably because there is insufficient data in the corpus.

Fifthly, eight students mentioned that there are insufficient query options for parts of speech in Tango. S20 responded that there are only query options of noun, verb, and adjective, but there is no conjunction, etc. Several students also mentioned there are no query options such as phrases (S4, S11), preposition (S9), and adverbs (S6, S8, S9, S13, S17) in Tango.

Three problems were mentioned in the interviews but not in the questionnaires. Four students expressed that there is insufficient Chinese data in the corpus tools. S16 responded that it is more difficult to find Chinese idioms or other special expressions in the corpus tools, and it will take more time to find what they want. Besides the insufficiency of Chinese information, one student explained that she had problems with word use and constructing sentences with the query results. S13 said after the queries are made, they did not know where to put the vocabulary and how to use the collocation combination in the sentences. They have problems with sentence structure and do not know how to arrange the words in a sentence.

Finally, four students mentioned that they had other problems. The first student, S16, said they did not know how to choose the most suitable word to use among the several choices from the query results. They have to decide which word suits the context of the sentence best, but they did not know how to make the choice. The second student, S17, commented that they had two problems with corpus-assisted translation. S17 expressed that they figured that BNC is British English and is different from American English for some of the word use, and there are also differences in the results of the frequency list. The other problem is although they already knew how to use the corpus tools, they still had to think for a long time when they make enquiries because they are not very familiar with the corpus tools yet. The

third student had trouble recognizing the part of speech for the words. Therefore, there is no way that they could use Tango because they did not know which query option to select for the part of speech when making enquiries. The fourth student could not figure out the desired answers by looking at one example sentence in the query results. They had to check several sentences in order to make the correct judgment on which word to use in their sentence of translation.

These are the problems the students encountered in corpus-assisted translation. Five (not user friendly, lack of keyword highlight, system often freezes, insufficient query option, insufficient Chinese data) of the eight categories of problems are related to the design of the corpus tools, and the other three categories (cannot find desired information, problem with word use and constructing sentence, other problems) are relevant to the students' query strategies. Of the five repeated problems in the questionnaires and group interviews, there is only one problem that is related to query strategy—cannot find desired information. The other problems are about the design of the corpus tools. The students mentioned about their problems with query strategies in the group interviews, and provided deeper information about their difficulties in corpus-assisted translation. To sum up, there are six problems relevant to query strategies, which include: students cannot find desired information, problems with word use and constructing sentences, did not know how to choose the most suitable word from the query results, not very familiar with the corpus tools, had troubles recognizing the part of speech for the words, cannot figure out the desired answers quickly from the query results. This evidence shows that the students still have many problems with query strategies when using corpus-assisted translation. Although training and practice in query strategies had been provided to the students in class, more help should be given to some of the students in order to solve their individual problems in corpus-assisted translation.

4.3 Benefits the Students Receive in Corpus-assisted Translation

Several analyses have been done to investigate the third research question of the study: "What are the benefits the students receive through using corpus tools to assist them in translating?" Results of these analyses will be reported in the following sections.

4.3.1 Improvements in the Post-test Grade

Average Grade Improvement in the Post-test

This analysis focused on the student participants' grade performance in the pre-test and post-test of the study. Score comparisons were made to compare the students' grade performance before and after using corpus tools to assist them translate in the translation cloze tests. The analyses include comparing the average score improvement between the two tests and the average improvement rate, and statistical analysis of the scores of the two tests. The results of the average score improvements are presented in Table 4-14; the average improvement rate was 49.3%. For the statistical analysis, Paired-Samples T Test was conducted with the SPSS program to test whether the results of the pre-test and post-test scores of every participant show any statistical significance. One of the participants' grade remained the same in both tests, but all other 28 participants made satisfactory improvements in their test scores and improvement rates. Therefore, the results of the two-tailed test show that there is statistical significance [p= 0.023, Sig. (2-tailed)= 0.000] as in Table 4-16 and Table 4-17.

Table 4-14 Average pre-test and post-test grade and improvement rate

Average Pre-test Score	Average Post-test Score	Average Grade Difference	Average Improvement Rate
52.1	**77.9**	**25.7**	**49.3%**

Table 4-15 Results of Paired-Samples T Test

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-test Grade	52.138	29	14.7169	2.7329
	Post-test Grade	77.862	29	9.8161	1.8228

Table 4-16 Results of Paired-Samples T Test

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Pre-test Grade & Post-test Grade	29	.420	.023

Table 4-17 Results of Paired-Samples T Test

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pre-test Grade - Post-test Grade	-25.7241	13.8439	2.5707	-30.9901	-20.4582	-10.006	28	.000

Students' Level of Translation Ability and their Accuracy Rate

The results from the Paired-Samples T Test show evidence of significant improvement for all the students in the post-test compared to the pre-test. In this analysis, students of different levels will be examined to investigate the relationship between the students' translation ability and their average improvement rates in the post-test. This analysis aims to find out which level of students the corpus tools are most useful to.

Table 4-18 Grade performance of the three levels of students

	G1 (Bottom 33%)	G2 (Medium Level)	G3 (Top 33%)
Average Translation Grade	50	63	74.9
Average Pre-test Grade	45.8	47.4	62.7
Average Post-test Grade	71.6	76.2	85.7
Average Grade Improvement	25.8	28.8	23.0
Average Grade Improvement Rate	65.9%	71.3%	43.6%

Students of the G1, G2, and G3 levels made significant improvements in the post-test after they used corpus tools to assist them translate. The average grade improvement rate falls between the range of 43% ~ 71%. The grade improvement rate of G1 students is 65.9%; G2 is 71.3%; G3 is 43.6% as listed in Table 4-18. The improvement rate of the medium level students (G2) is greater than the lower level students (G1) and the higher level students (G3). The higher level students (G3) made the least improvement compared to the lower (G1) and medium level (G2) students. One of the possibilities of this phenomenon is because the G3 level students achieved a much higher average pre-test score (85.7) than the G1 (45.8) and G2 (47.4) students (Table 4-18). The difference of the average pre-test score of G1 and G2 students is actually quite close in its value—only 1.6, whereas G3 is 15.3 greater than G2 and 16.9 than G1. Therefore, it resulted in a smaller improvement rate for the G3 students because they were much more capable of answering the pre-test questions than G1 and G2 students.

Besides, the way the value of the improvement rate is calculated also has an impact on the number—having the average grade improvement value (difference between the post-test and pre-test scores) divided by the average pre-test score. However, all three levels of students made quite a similar amount of grade

improvements after using the corpus tools to assist them translate—G1 improved 25.8 points in the post-test, G2 improved 28.8, and G3 23.0. There is only a difference of 5.8 points between the highest and the lowest value. With similar grade improvements made by all three levels of students, the greater the value of the pre-test score is, the smaller the value of the improvement rate will be. Therefore, the G3 students ended up with the least improvement rate among the three levels. Even though G3 made the least improvement rate among the three levels of students, they still achieved an improvement rate as high as 43.6, which is still very satisfactory.

G2 students made the greatest improvement in terms of their average grade improvement (28.8 points) and grade improvement rate (71.3%) among the three levels of students. However, the answer to the question why G2 students made the most improvements is not clear from the quantitative data.

Improvements of the Two Question Types in the Post-test

This analysis focuses on the students' grade improvement for the two question types respectively in the pre-test and post-test of the study. Question type 1 refers to the collocation questions (13 questions), and type 2 refers to the vocabulary usage questions (12 questions). Analyses and comparisons were made to compare the students' grade improvement in the two question types before and after using the corpus tools to assist them to translate in the tests. The purpose of doing the analyses was to try to figure out which type of question the corpus tools are most helpful to.

The results show that the corpus tools are helpful to both of the question types (Table 4-19). The score sum of question type 1 (collocation) was a summation of the scores of the 13 questions (full score for each question was 4 points) from all the 29 participants. The pre-test score sum was 790 out of 1508 points (13 questions* 4 points* 29 students), and the post-test score sum was 1142 points. Therefore, the improvement rate of question type 1 (collocation) was 44.6%, which was the value of the score sum difference between the pre-test and post-test divided by the pre-test score sum. On the other hand, the score sum of question type 2 (vocabulary usage) was a summation of the scores of the 12 questions (full score for each question was 4 points) from all the 29 participants. The pre-test score sum was 723 out of 1392

points (12 questions* 4 points* 29 students), and the post-test score sum was 1116 points. Therefore, the improvement rate of question type 2 (vocabulary usage) was 54.5%, which was the value of the score sum difference between the pre-test and post-test divided by the pre-test score sum.

The results indicate that corpus tools are helpful to grade improvements in the two question types—collocation and vocabulary usage. The improvement rates show that the participants have made significant improvements in the post-test after using the corpus tools to assist them translate. However, the improvement rate of vocabulary usage is slightly higher than collocation by 10%. Therefore, it can be observed that the corpus tools are slightly more helpful to the students in their ability in vocabulary usage than in collocation in this Case Study.

Table 4-19 Improvements of the two question types in the post-test

Type 1 Collocation			
Item	# of Questions	Pre-test	Post-test
Score Sum	13	790	1142
Full Score	13	1508	1508
Accuracy %		**52.4%**	**75.7%**
Improvement %			23.4%
Improvement Rate			44.6%
Type 2 Vocabulary Usage			
Score Sum	12	723	1116
Full Score	12	1392	1392
Accuracy %		**51.9%**	**80.2%**
Improvement %			28.3%
Improvement Rate			54.5%
All Question Summary			
Total Score	25	1512	2258
Full Score	25	2900	2900
Accuracy %		**52.1%**	**77.9%**
Improvement %			25.7%
Improvement Rate			49.3%

4.3.2 Areas of Improvement after Using the Corpus Tools

The scoring of answers for the pre-test and post-test was illustrated in Appendix 13. In 4.2.2, a comparison of score distribution in the pre-test and post-test was made to find out the difficulties the students had when using the corpus tools. In this part of the analysis, similar comparisons will be made using the same tables, however with different aims. The focus of this analysis is on the areas of the students' improvements in the post-test after using the corpus tools. It investigates the frequency of response scores in areas of spelling, grammar, vocabulary use, collocation, and compares their distribution in the pre-test and post-test. This analysis aims to find out in which areas of ability the corpus tools are helpful to the students.

Table 4-10 from 4.2.2 lists the frequency and percentage of the score distribution in the pre-test and post-test, the difference in percentage, and the improvement rates. Figure 4-1 shows that the majority of the responses fall on score zero, three, four, and missing answers. Apart from these responses, the other scores are relatively low (about 2~4%) or approach zero (under 1%).

Missing answers means the students did not respond to the question at all, and left it blank. The students probably had no clues about the answers, and simply gave up responding. In the pre-test, there were 153 missing responses which was 21.1% of all the responses in the pre-test. In the post-test, the number dropped substantially to 8 responses, and is only 1.1%. There was a huge decrease of 20%. The negative improvement rate means the number of missing responses had decreased. It means the students were making progress in the post-test, and the improvement rate was as high as 95%. This means the students were making every effort to answer the questions in the post-test and only very few responses were left blank. The result suggests that the students had a stronger motivation in answering the post-test questions when they were translating with help from the corpus tools compared to translating without any aid in the pre-test.

Comparisons were also made for score zero, and there was also an improvement in the decrease of wrong answers in the post-test. Score zero represents students who

used the wrong choice of word for their answers in the tests. In the pre-test there were 131 responses (18.1%) of zero, and the number declined to 83 (11.4%) in the post-test. There was an overall decrease of 6.6% for responses of zero. The negative improvement rate means the number of zero responses had decreased in the post-test, and the improvement rate was 37%. In other words, this represents that the students' wrong answers had decreased by 6.6% in general, and their ability for word choice had improved by 37%.

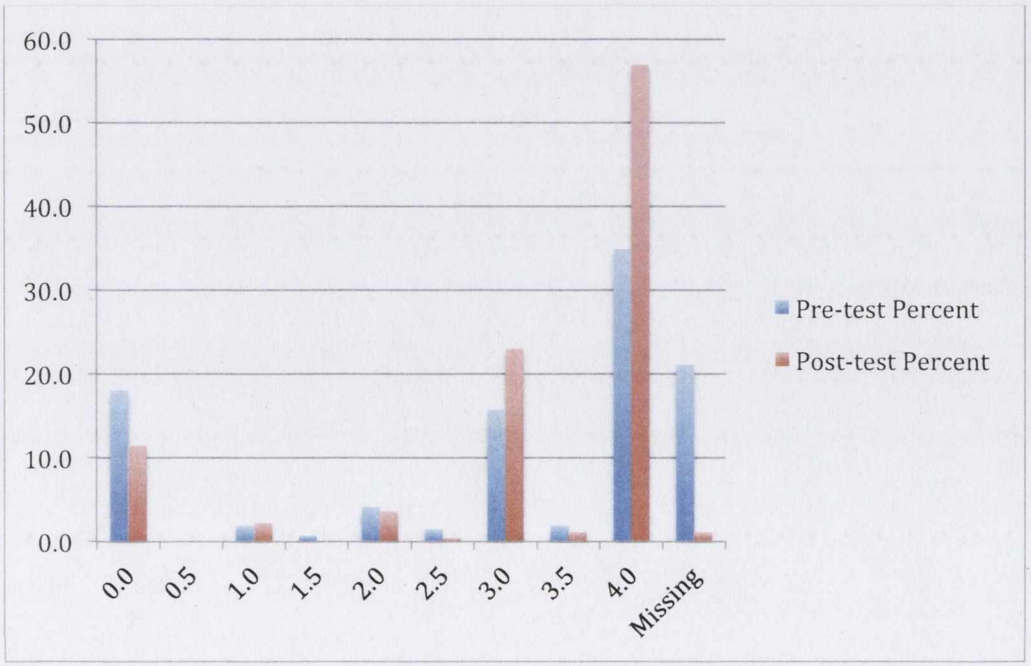
Except for missing answers and wrong answers, the students receive some of the full score (four points) for each response if they used acceptable or correct choice of words, but with wrong spelling and/or wrong word form as illustrated in Appendix 13 and Table 4-4. More information can be found in the tables in Appendix 14, which lists the scoring rubric for all the response answers given by the students in the pre-test and post-test.

As explained in 4.2.2, score 3 represents that the students chose the correct word, but used the wrong grammatical form for their answer. There were 114 responses (15.7%) of score 3 in the pre-test, and the number went up to 167 responses (23%) in the post-test. There is an overall increase of 7.3% in percentage, and the improvement rate for the frequency was 46%. This means the students' ability to choose the correct word choice had improved substantially, but their ability in grammar in choosing the correct form for the answers was still weak for 23% of the students/responses even after the corpus tools were available. Although the students could enquire using the corpus tools for the translation, word use and collocation combinations, some of the students had problems synthesizing the grammatical usage from the example sentences in the query results. Other students had problems recognizing the part of speech for the word in question. Therefore, some of the students still have problems using the correct word form for the answers in the tests. The results in 4.2.2 show that students of the lower level (G1) had more problems with grammar, but the students of the intermediate (G2) and higher level (G3) had little problem with grammar comparatively after they used the corpus tools to help them translate.

Table 4-10 (repeated): Distribution of Response Scores and Improvements in the Pre-test and Post-test

Response Score	Pre-test Frequency	Pre-test Percent	Post-test Frequency	Post-test Percent	Difference %	Improve-ment Rate
0	131	18.1%	83	11.4%	-6.6	-37%
0.5	0	0%	0	0%	0.0	0%
1.0	14	1.9%	16	2.2%	0.3	14%
1.5	5	0.7%	1	0.1%	-0.6	-80%
2.0	30	4.1%	26	3.6%	-0.6	-13%
2.5	11	1.5%	3	0.4%	-1.1	-73%
3.0	114	15.7%	167	23.0%	7.3	46%
3.5	14	1.9%	8	1.1%	-0.8	-43%
4.0	253	34.9%	413	57.0%	22.1	63%
Missing	153	21.1%	8	1.1%	-20.0	-95%
Total	725	100%	725	100%		

Figure 4-1 (repeated): Comparison of Response Score Distribution for the Pre-test and Post-test



Score 4.0 represents that the students chose the correct word/collocation, and used the correct word form and spelling in their answers. As shown in Table 4-10 and Figure 4-1, there is a big increase in the number of students who received score 4.0 in the post-test. There were 253 responses (34.9%) of score 4.0 in the pre-test, and the number rose to 413 responses (57.0%) in the post-test. The overall improvement for score 4.0 was 22.1%, and the improvement rate was as high as 63%. The statistics show that in comparison with the pre-test, the number of responses that achieved the full score grew by 22.1% in the post-test. The frequency of score 4.0 in the pre-test nearly doubled in the post-test, and there was an increase of 160 responses in frequency in the post-test. The results prove that there is a significant improvement in the students' word choice, collocation, grammar use and spelling in the post-test after they used the corpus tools to help them translate. In other words, the corpus tools are very helpful to 22.1% of the students in their abilities of word choice, collocation, grammar use and spelling when translating.

Concluding Remarks

The analyses on the score distribution show that there is a big reduction in the overall number of missing responses by 20%, as well as a decrease in the number of wrong answers by 6.6%. There are also increases in the frequency of score 3.0 and 4.0 in the post-test by 7.3% and 22.1% respectively. A summary of score distribution is made to further summarize the improvements made by the students. Table 4-12 is a summary of the statistics in Table 4-10 by adding up the frequency and percentage of the score distributions.

Table 4-12 (repeated table): Summary of Score Distribution for the Pre-test and Post-test

	Pre-test Frequency Sum	Pre-test Percent Sum	Post-test Frequency Sum	Post-test Percent Sum	Difference %
0 & Missing	284	39.0%	91	12.6%	-26.6%
0.5~2 points	49	7.0%	43	5.9%	-0.8%
2.5~4 points	392	54.1%	591	81.5%	27.4%
Total	725	100%	725	100%	

The value in the category of 0 and Missing show that there is an increase in the students' motivation in responding to the questions; they try to answer as many questions as they can. It also shows that there is a decrease in wrong answers (score zero). Score 0.5~2.0 were not discussed in the analysis of score distribution because the numbers were all relatively low. The summary of scores 2.5~4.0 shows an overall improvement in correct word choice (vocabulary use/collocation), grammar, and spelling by 27.4%.

Therefore, evidence from the analyses shows that the benefits students receive in corpus-assisted translation are in the areas of motivation, accuracy rate, correct word choice (vocabulary use/collocation), grammar, and spelling when they were doing a translation cloze test.

4.3.3 Students' Perceived Benefits of Corpus-assisted Translation

In this part of the analysis, the focus is on the students' perceived benefits of corpus-assisted translation from the data from the group interviews. The students have also expressed feedback relating the usefulness of corpus tools to their attitudes in learning translation in these interviews. However, only the benefits related to undertaking translation tasks will be discussed in this section. The students' attitudes will be discussed in a separate section in 4.5 because that answers the fifth research question.

In the previous two analyses of 4.3, improvements in the post-test grade and areas of improvement after using the corpus tools were investigated and illustrated with examples. The third analysis investigates the third research question from the students' point of view by analyzing the benefits they perceived in corpus-assisted translation based on their responses in the group interviews. There were thirty-seven responses relevant to this topic, which were organized into six categories as shown in Table 4-20.

Table 4-20 Students' perceived benefits of corpus-assisted translation

Benefits	Corpus tools are better than bilingual dictionaries	Helpful to collocation combinations	Increased accuracy of translation	Solving translation problems independently	Methods of constructing knowledge in translation	Others	Total
Responses	10	4	6	8	6	3	37
Students	S2, S3, S4, S6, S14, S20, S21, S22, S23, S24	S3, S8, S14, S24	S3, S4, S6, S8, S9, S25	S4, S10, S11, S12, S13, S14, S15, S16	S3, S6, S20, S21, S22, S24	S5, S16, S21	

In the first category, ten students commented that the corpus tools are better than bilingual dictionaries in several ways. Several students responded that the corpus tools contain more example sentences and reference information than dictionaries. Three students said that dictionaries only provide a translation of the word in question. They give a list of possible translated words but do not indicate which one is suitable for the context or how to use it properly. In contrast, the corpus tools help to understand the usage of the words in question by providing many example sentences. With more example sentences, it is easier to make judgments on which word suits the context best.

In the second category, four students said the corpus tools are helpful for collocation combinations. S3 said there is less information on collocation in bilingual dictionaries compared with the corpus tools. S8 said you get used to the combinations of collocation if you use the corpus tools frequently. As time goes by, you get to know that this word goes with those prepositions, and it becomes as natural as a habit. S14 responded that the corpus tools give you information such as the most frequently used noun following, for instance, "provide" and they also provide you with example sentences. S24 remarked that, when using electronic dictionaries, you just check the vocabularies but when using a corpus there is more focus on collocations and grammar.

For the third category, six students remarked that the corpus tools increased the accuracy of their translation. S8 said even if they make mistakes, it will not be too far away from what is accurate. S25 commented that the accuracy rate of their translation was only 20~30% in the past, and it had gradually increased to 50~60% after receiving training for one semester. S6 responded that translations have become more accurate and are not like Taiwanese style English anymore; they made fewer mistakes, and translation also became easier to them. All these students expressed positive feedback that the accuracy rate of their translations was increased after using the corpus tools to assist them translate.

In the fourth category, eight students said that the corpus tools helped them to solve translation problems independently. S4 explained that it is easier to find answers because of the availability of corpus tools. S16 remarked that they should be able to solve 80% of the translation problems they encountered. S13 and S14 responded that basically they could deal with the translation problems by themselves with help from the corpus tools. S13 commented that they used to check on what other people say in translation forums: "People always have different opinions about how to translate certain things, and I do not know which one is correct. Then I felt really annoyed and thought how come translation is so difficult. However, things became really different after I can make use of the corpus tools. They are brilliant!" Another student said that when they were confronted with translation problems, they felt that they knew better about the ways to figure out the answers, instead of waiting for the answers from the teacher. To sum up, these students responded that, with the availability of corpus tools, they learned to solve the translation problems they encountered, and they could deal with them independently.

For the fifth category, six students explained how the corpus tools helped them to construct their knowledge in translation. S3 responded that they do their translations by mimicking the sample sentences from the corpus query results. S20 also remarked that they learned how to use grammar because the corpus tools provide similar sentences so they could translate the sentences in a better way. S24 thinks that a corpus provides you with templates for translation. S24 remarked that they really got to know more vocabulary and grammar after using the corpus tools. The more sample sentences they checked, the better judgments they have for many

things.

S22 said that they used to check electronic dictionaries, but they did not know how to construct a sentence—how to start a sentence, put different parts together, and end it. But now, with the availability of the corpus tools, they can check the sample sentences and find similar ones to what they are translating. Then they can use the sentences as models for their translation. One student gave an example: you do not know whether you should place "besides" in the beginning or in the middle of the sentence. You check the word with TotalRecall and realize that you should place it at the beginning of the sentence. S24 said that they think about more things when translating with the corpus tools, for example collocations and grammar. They used to only focus on the accuracy of grammar and vocabulary, but now they would also focus on the collocation or vocabulary. They think they can make better judgments now. The comments made by these students show how they construct their knowledge of translation by making use of the corpus tools to help them translate.

The findings from the group interviews show that the students' perceived benefits from corpus-assisted translation are that the corpus tools provide the students with better assistance and reference than dictionaries, are helpful to collocation combinations, increased the accuracy of their translation, helped them to solve translation problems independently, and helped them to construct their knowledge in translation. Also, the majority of the responding students mentioned that the corpus tools are very helpful to their vocabulary, grammar and collocation, as well as the usefulness they received from the numerous example sentences provided. The corpus tools help them to keep filtering the information until they find the desired answers. The results of this analysis triangulate with the results of the previous two analyses in 4.3 regarding the benefits of corpus-assisted translation. Therefore, strong evidence has been collected and provided to show how corpus-assisted translation can be very useful to the students' learning of translation.

4.4 Students' Perceptions and Attitudes towards the Two Approaches

The results in this analysis will answer the fourth research question: "What are the students' perceptions of and attitudes towards the student-centred corpus-assisted translation approach? In comparison with a traditional translation approach, which approach do the students think is more helpful to them in solving translation problems?" In this part of the analysis, students' perceptions and attitudes towards the student-centred corpus-assisted translation approach versus the traditional grammar translation approach will be presented, as well as the students' views that think both approaches are important.

In the group interviews, the students were asked about their preferences with regard to the two approaches. There were twenty-three responses relevant to this question, and the responses were organized into three categories as shown in Table 4-21. Two of the students replied to both the first and third category. One of the students (S22) said that the traditional approach is more helpful to them, and the other student (S20) expressed positive feedback towards this approach. However, both of the students also responded that they think both approaches are important.

Table 4-21 Students' preference towards the two approaches

	Traditional approach	Student-centred approach	Both approaches are important	Total
Responses	2	15	6	23
Students	S20, S22	S1, S2, S3, S5, S6, S7, S8, S12, S13, S17, S18, S19, S21, S23, S25	S14, S15, S16, S20, S22, S24	

4.4.1 The student-centred Approach versus the Traditional Approach

It is interesting that only one student definitely responded that the teacher-centred traditional translation approach is more helpful to their learning of translation than the student-centred corpus-assisted translation approach; however, there do exist six students that think both approaches are important and are supplementary to each other. Fifteen students responded that they think the student-centred corpus-assisted translation approach is more helpful to their learning of translation. S5 responded that they like the student-centred approach better because the corpus tools are really handy to them. S12 and 17 mentioned that the student-centred approach helps them to have motivations in learning because the training in corpus enquiry skills is autonomous learning and they could remember what they learn more quickly. S17 further explained that the student-centred approach taught skills so that once they knew how to use the corpus tools, they benefited from them for a lifetime.

The other students all mentioned the usefulness of the actual practice of enquiring with the corpus tools to help them translate in the student-centred approach. S2 responded that before the midterm exam, the teacher was teaching the contents of the textbook. There was less time for them to practice, and they did not know as well where the problems were with their translation. S13 commented in relation to the first approach (teacher-centred): "I had difficulties finding information and I did not understand all the explanations of grammar in class." In contrast, with the actual practice, it was easier to understand because they could recognize the grammar patterns from the example sentences in the corpus. With the availability of the corpus tools, they could find answers by themselves, and learn to be independent from the teacher. S23 said that with the student-centred approach, they understood the usages of vocabulary and grammar better and made improvements in those areas.

With only one student who thinks the teacher-centred approach is more useful to translation, the other fifteen students all agreed that they think the student-centred approach is better. Some of the students commented that the corpus tools are really convenient and useful to their translation. Besides, the majority of the students explained that the main reason is because they had more opportunities to do actual

practice in translation by enquiring with the corpus tools in the student-centred approach. This really helped them to remember what they have learned and increased their knowledge and skills of translation. Therefore, they think the student-centred corpus-assisted translation approach is more helpful to their learning of translation than the teacher-centred traditional translation approach.

4.4.2 Both Approaches are Important

In the third category, six students expressed their opinion that they think both approaches are important to the learning of translation. S15 said they think both approaches are necessary. If they were translating without access to any tools, they would need the skills from the first approach. S14 responded that they think the second approach is more like practicing by themselves. However, the student thinks the first approach is very important because they learned how to translate certain sentence patterns, for example, sentences without subjects, or sentences starting with "it". The student said that was the first time they learned and really understood how to use those rules. So, S14 thinks both approaches are useful.

S16 explained that the first approach helped them to build a more solid foundation for the second approach. After they had built up the background knowledge, they had a better idea of how to do the translation when making enquiries in the corpus tools. Therefore, S16 thinks that both approaches are equally important.

S20 also responded that they think it is necessary to have both of the approaches because they needed a foundation for making the enquiries. After they learned the grammar rules from the first part of the course, it became easier and more convenient to make enquiries in the corpus tools. In addition, S24 commented that the training before the midterm exam strengthened some of their concepts and then they utilized those concepts to undertake the numerous practices in the second part. The student said they think this combination is quite good.

These six students highlighted the importance of the two approaches, and provided very specific insights into how the approaches could complement each other to help them learn translation more effectively. They believe that the first part

of the course, the traditional grammar translation approach, helped them to build a foundation for the second part of the course, the student-centred corpus-assisted translation approach. This feedback not only confirms the value of the traditional translation approach to the students' background knowledge of translation. It also provides very convincing evidence that the combination of the two teaching approaches can help the students to learn corpus-assisted translation in a more effective way than only implementing the student-centred corpus-assisted translation approach by itself.

The results in this part of the analysis reveals the students' perceptions and attitudes towards the two approaches—the student-centred corpus-assisted translation approach and the teacher-centred traditional translation approach. Comparisons between the two approaches show that, fifteen out of twenty-three students (65%) believed that the student-centred approach is more helpful to their learning of translation, whereas only one student thinks the teacher-centred approach is more useful. Six students strongly believed that both of the approaches are equally important and had helped them to learn corpus-assisted translation more effectively. In conclusion, evidence from the group interviews shows that most of the students' attitudes towards the student-centred corpus-assisted translation approach are very positive.

4.5 Effectiveness of the Approach in Enhancing the Students' Learning Attitudes

The results of this section are based on 25 students who were group interviewed. The results show that the majority of the students are positive about using corpus to learn translation, which is in line with previous studies (Bowker, 1998; Gao, 2011; Kenning, 2010; Possamai, 2009; Rodríguez-Inés, 2009, 2010; Tseng, 2009; Wang, 2011; Xiao and Yue, 2009; Zanettin, 1998, 2002). Evidence of the students' perceptions and attitudes towards the approach will be reported in the following four areas including the students' level of interest, motivation, learner autonomy, and confidence.

4.5.1 Interest

In this research, interest is defined as having the willingness to learn more about translation. Several student participants said that their interest in learning translation had increased after they learned to use a corpus.

S6: After I learned how to use the corpus, it is indeed quite helpful to me and my interest in learning translation has been slightly increased.

S15: When accuracy and sense of achievement in translation increase, interest increases naturally.

S21: Oh! I became really interested in learning translation.

Corpus-assisted translation helps students who used to have poor performance in translation to become more interested in the subject. It also helps students to overcome the sense of difficulty towards the subject, and become more interested in translation.

S9: I also think that my interest in learning translation has been increased. I used to have poor performance in translation and grades. However, I became more interested in translation after we started to use corpus.

The students generally responded that making enquiries in the corpus tools with their translation problems aroused interest in learning translation. The students emphasized that their interest in learning translation has increased after using corpus tools to help them translate.

4.5.2 Motivation

Motivation is defined as having a strong feeling to do something with enthusiasm, and it does not need other people to force them to do so. In other words, students with motivation have the passion to learn translation without being asked to do so by the teacher. Some student participants responded that making enquiries in corpus tools with their translation problems helped to increase their willingness and motivation in learning translation. A student responded that she felt encouraged if

she knew that she translated something correctly. She found the motivation to keep going, and felt that translation is not so difficult anymore with the help of corpus tools.

S4: Yes. Just because it is helpful, I have a stronger will to learn translation. Comparing to the time before the corpus tools were introduced, I now get more enjoyment in doing the translation tasks.

S16: With the help of corpus tools, when I translate something correctly, I would think, ok, I shall continue. … I thought I'll carry on. … Every time I translate something, I feel that this sentence isn't all so difficult at all.

Some other students think that translation has become less difficult and they learned how to write sentences without having to think for a long time.

S12: Before I learned about the corpus tools, I only knew how to check vocabulary, but I didn't know how to turn the words into a sentence. However, after I used the corpus tools, I can figure out its collocations, and turn the words into a sentence. I then have a strong motivation to finish the sentence.

S24: I used to use electronic dictionary to help me do my translation task, and I felt like I want to quickly wrap up and finish the task. Now I use the corpus tools to help me translate, and feel that I can learn a lot of things apart from doing the assignment. … There is something extra compared to the past—I found the motivation in learning.

The students found that corpus-assisted translation is helpful in increasing their willingness to learn translation. The corpus tools can help them overcome the difficulties they encounter in translation; therefore, they have stronger motivation to do the translation tasks. They think that doing translation tasks in class becomes a more enjoyable work, and corpus tools have also helped them to become more motivated in learning translation.

4.5.3 Learner Autonomy

Besides increasing students' interest and motivation in learning translation, the corpus-assisted translation approach also helped the students to solve translation problems independently and increased their learner autonomy. Learner autonomy is defined as being autonomous and spontaneous in learning translation, which means the students found the drive from inside rather than outside, and they learn translation spontaneously. Consequently, the students are able to make their own decisions for translation without needing to ask for help from others, and can solve translation problems independently after receiving training in corpus-assisted translation. Some student participants think that using corpus tools to assist them to translate has helped them to find answers more easily and consequently they have a better idea of how to put the sentences together.

S19: It becomes easier to find the answers to my translation problems (after I used the corpus tools). Besides, when I think of translation, I feel that there is a breakthrough. … In the past, I was kind of afraid. I was afraid of making mistakes.

The nature of the corpus has provided the students with sample sentences and templates for their translation, so they can be more independent in solving translation problems.

S16: I think with the corpus tools, I wouldn't have to think from scratch about how to translate the sentences. … But, now with the corpus tools, they will help you filter the unwanted information until you find your desired answers.

S24 : It seems that corpus provides me with a template. With the template, I wouldn't have to base my imagination on nothing. I could roughly follow its meaning and pattern.

One of the students responded that she thinks she has the ability to solve translation problems independently after finishing the classes.

S22: Yes. With the availability of TotalRecall and Tango, I become more capable of doing translation. I used to use electronic dictionary to help me translate, but I didn't know how to start a sentence, how to link the words and how to finish the sentence. However, now I can check the sample sentences in the corpus, and use the sentences that are similar to what I am writing. With the reference of sample sentences, I would know how to start, link and finish the sentence. Therefore, I feel that translation has become easier to me than before.

The nature of corpora helps the students to translate more independently because the students can find answers to their translation problems more easily and the corpora provide examples of language reference similar to their translations. Therefore, there is evidence that corpus tools can help increase the students' level of independence in solving translation problems and their capability of doing translation.

Since the students can solve translation problems independently, they become autonomous in their learning. Several students explained that they became more spontaneous and autonomous in learning translation after they learned how to use a corpus to assist them in translating. One student responded that using corpus tools was useful in arousing her interest and helped her to become more autonomous in learning translation.

S9: I became more interested in translation after we started to use corpus. Consequently, I would search for information relevant to translation, or spontaneously study some English.

One of the students expressed her views that the student-centred corpus-assisted translation approach was more useful to her learning of translation than the teacher-centred translation approach. The reason is because she would check the information in the corpus spontaneously instead of waiting for the answers from the teacher.

S6: The latter (student-centred corpus-assisted translation approach) is more useful to my learning of translation because it becomes that we spontaneously check the information (in the corpus) by ourselves. It is not like we don't want to do the translation task and wait until the teacher demonstrates (how to translate the sentence). The situation becomes like you had to check (the answers) by yourself. As long as you check it and understand the word, it becomes yours. It's different from the way that the teacher teaches about it, and you think, "O.K. That's how it works."

It is interesting to learn about the students' change of attitudes; they were no longer sitting and waiting for the teacher to explain the answers. Instead, they became autonomous in doing the translation tasks in class, and understood that they acquire the knowledge once they start to check the information and answers by themselves. The results show that using corpus to learn translation can help increase the learner autonomy of the students.

4.5.4 Confidence

Besides interest, motivation, and learner autonomy, it is evidenced that the students' level of confidence was also improved after using the corpus tools to help them to translate. Confidence is the students' belief in themselves that they have the ability to translate the texts, and are confident in the accuracy of their translation. Many students stated that with the availability of the corpus tools, it saves them a lot of time trying to figure out the answers from checking the dictionaries. It also boosts the level of confidence in the accuracy of their translation. One of the students said that translation has become easier to her with the availability of similar sentences and grammar patterns from the corpus, so that she felt that she translated well after finishing her work.

S20: Because corpus provides similar sentences, I can figure out how to use grammar, and my translation becomes better. As a result, I feel that translation is actually not as difficult as I have imagined.

Some of the students respond that their translation texts are much more accurate than when they used dictionaries to assist them translate. Most importantly, many students expressed that their level of confidence in the accuracy of their translation increased substantially after they used the corpus tools to enquire about translation problems.

S14: I think knowing how to use the corpus tools can help me increase the accuracy of my translated texts. Even though it does take some time to figure out the answers, I still think it is worthwhile doing so. Because it is far better than spending a lot of time thinking and guessing the answers by myself.

S8: With this method, I would become more confident. Otherwise, I sometimes spend a lot of time checking the dictionary, but all that I translated was wrong. However, things become better when I have the corpus tools, i.e. my translated texts are much more accurate (than when I used dictionaries to help me translate). Even if something goes wrong, it won't be too far away from what is correct (it won't be serious mistakes).

S7: I used to feel really bothered and annoyed when I am assigned with one translation assignment. However, after receiving these training (of using corpus tools), I realized translating is actually quite interesting. I feel that I translated very well although mistakes are sometimes found and marked in my work. Nevertheless, I always feel that I translated really well after I finish translating. Therefore, my confidence in translating has been improved.

To summarise, the students realized that translating is actually quite interesting after receiving training in using corpus tools. Knowing how to use the corpus tools helped the students increase the accuracy of their translation, and they know that even if they make mistakes, it will not be too far away from what is correct. Being able to find answers really quickly and knowing how to translate help the students no longer think translation would be a problem to them. These are some of the reasons why the students' confidence in translation would increase substantially after using the corpus tools to assist them in translating.

4.5.5 Students' Online Feedback

The students were asked to give online feedback about the curriculum on the discussion forum of the university Moodle system. The majority of the students expressed the opinion that the corpus had been very useful to their translation and how it helped them to translate. However, only two students mentioned about how the corpus enhanced their learning attitudes. S17 said, "I sometimes could not find my desired words from enquiring in the corpus, or even spend several minutes just to check a word; however, I felt a great sense of achievement if I manage to find it." S14 said, "I have been learning translation skills with great enjoyment throughout the semester. Although the assignments are sometimes rather challenging, we still can finish them effectively and more confidently by using the methods provided by the teacher."

4.6 Concluding Remarks

The results show that the majority of the students find corpus tools very useful to assist them translate, and are positive about using corpus to learn translation, which is in line with previous studies (Bowker, 1998; Gao, 2011; Kenning, 2010; Possamai, 2009; Rodríguez-Inés, 2009, 2010; Tseng, 2009; Wang, 2011; Xiao and Yue, 2009; Zanettin, 1998, 2002). Besides enhancing the students' learning attitudes in areas such as interest, motivation, and learner autonomy, the present study also found that the students' confidence in the accuracy of their translated texts was also strengthened through the implementation of the student-centred corpus-assisted translation approach.

Chapter 5 Discussion and Conclusion

5.1 Using Corpus to Learn Translation

As discussed in the literature review, many scholars have studied how corpora can be useful to the teaching and learning of translation (Aston, 1999; Bowker, 1998; Gao, 2011; Rodríguez-Inés, 2009, 2010; Tseng, 2009; Wang, 2011; Xiao and Yue, 2009; Zanettin, 1998). In the present study, evidence was found on how the corpus tools have helped the student translators to learn translation, as well as the difficulties and benefits in corpus-assisted translation.

5.1.1 How Students Make Use of TotalRecall and Tango in Translation Tasks

In the first research question, the question raised was how the students make use of TotalRecall and Tango in their translation tasks. There are three aspects relevant to this research question: "Which of the two corpora tools do the students think is more useful to translation? Why do they think it is particularly useful? What use do the students make of TotalRecall and Tango in Translation tasks?"

Results from analyses in 4.1.1 answered the first two questions. Twenty-six out of twenty-seven students who responded to question 25 in the final questionnaires stated that they used TotalRecall much more often than Tango. Except for one student, the number of TotalRecall enquiries is always double as many as Tango enquiries, or even more as shown in Table 4-1. The results show that the frequency of using Tango is much lower than TotalRecall in terms of the ratio of enquiry, which means the students prefer to use TotalRecall rather than Tango. Besides, the results of question 26 in the final questionnaire also show that all twenty-seven students responded that they liked TotalRecall better, among which, six of the students said they also liked to use Tango.

There are five reasons why students think TotalRecall is particularly useful as shown in Table 4-2: like it better, use it more often, easier to use, more examples, and availability of Chinese. All the five reasons explained why the students like to use TotalRecall better than Tango. The final point seems to be a dominant reason

why the students prefer using TotalRecall to using Tango because it contains Chinese and shows the results bilingually, which is very useful to students of intermediate level. The Chinese component in TotalRecall also serves as scaffolding for the students since their command of English still needs to be further developed. The Chinese translation of the English sentences in the bilingual alignment strengthens the students' comprehension towards the English query results. Therefore, the major reasons why students like TotalRecall better is because it shows Chinese results, and they can make enquiries with either Chinese or English key words. Consequently, it is easier and more convenient for them to use, and they like it better and use it more often.

The student participants preferred using TotalRecall rather than Tango because it provides them with Chinese reference and is also easier to operate. However, as an advanced user of the corpus tools, the researcher taught the students how to use them and also used the corpus tools to help her answer the pre-test and post-test questions. She thinks that both TotalRecall and Tango are important tools to help her translate. TotalRecall provides bilingual texts for translation references, and Tango provides essential information on collocation usages of words. They are complementary to each other in the process of corpus-assisted translation. Nevertheless, the researcher also found that using Tango requires a higher level of language proficiency because one needs to select the part of speech for query key words and combination of query choices. Besides, there is no Chinese translation in the BNC corpus in Tango. This is a challenge for the majority of the student participants because their language proficiency is only intermediate level. Therefore, the students all chose the Sinorama bilingual corpus when they used Tango in the post-test. Using Tango is much more difficult than TotalRecall, for which you need to select the part of speech, whereas you can use any Chinese or English query key word in TotalRecall. Therefore, for students of intermediate English level, it is rather challenging for them to use Tango to help them translate.

In order to find out what use the students make of TotalRecall and Tango in Translation tasks, analyses were conducted on the students' query logs and post-test answers (c.f. 4.1.2), as well as the students' query strategies (c.f. 4.1.3). In the literature review, scholars argue that corpora are better translation aids than

dictionaries because they provide authentic language reference that dictionaries often do not contain, and help translators solve translation problems and confirm hypotheses (Kenning, 2010; Possamai, 2009; Rodríguez-Inés, 2009, 2010; Zanettin, 1998, 2002). From the analysis of the students' query logs and post-test answers, it can be seen how the corpus tools helped students of different levels solve translation problems by providing reference translation in the bilingual alignment, as well as the information on grammar use from the context of the query results. Besides, the results show that corpus tools assisted the students to solve translation problems and helped them to figure out the correct word choice, word form and spelling of the answers. Enquiring with the corpus tools also helped the students to increase their score attainment in the post-test.

The analysis of students' query strategies in 4.1.3 investigates the relationship between the students' average number of enquiries and their average post-test score, and found that the results follow an inverse ratio as shown in Table 4-7. The more query searches the students made, the lower the average post-test score they receive (G1); the less searches, the higher their post-test score (G3). The tendency is that the fewer the query searches the students made resulted in higher post-test scores. The G3 students used the least number of query strategies on average (3.0) compared to the G1 (3.50) and G2 (3.56) students. This shows that the students of higher post-test score attainment are better at selecting correct query key words and using appropriate search strategies than the students of lower attainment when making use of the corpus tools to help them translate. Therefore, the G3 students can use the least number of query searches and strategies to find their desired answers in the post-test, and received a much higher average score (85.7) than the G1 (73.9) and G2 (76.2) students.

To conclude, the students make use of TotalRecall and Tango in their translation tasks in the following areas. The corpus tools helped the students solve translation problems by providing reference translation in the bilingual alignment, and supplying information on grammar use from the context of the query results. The corpus tools also assisted the students to figure out the correct word choice, word form and spelling of the answers for the translation cloze test, and increased their score attainment in the post-test. For the students of higher level (G3), they are more

capable of using corpus tools to help them translate than the students of lower levels (G1, G2). All in all, corpus tools are very helpful to the students of all three levels in solving their translation problems. The results in the study show consistency with the literature review.

5.1.2 Difficulties and Problems the Students Encounter in Corpus-assisted Translation

The analyses in 4.2 answered the second research question "What are the difficulties and problems students encounter when using corpus tools to assist them in translating?" This question was investigated through the following three aspects: the problems with TotalRecall and Tango, score distribution and error analysis of the test responses, and the students' perceived difficulties and problems.

In 4.2.2, the students' score distribution and error analysis in the pre-test and post-test responses were analyzed to observe the difficulties the students encountered in corpus-assisted translation. The results show that the students have problems with grammar and difficulties in making the correct word choice for the desired answer from the bilingual alignments.

The results of 4.2.1 listed the problems with TotalRecall and Tango respectively as shown in Table 4-8 and 4-10. Based on the responses of questions 31 and 32 in the final questionnaires, the students commented on the pros and cons of TotalRecall and Tango. There are some overlaps of similar problems in the two corpus tools, including insufficient data in both tools, not user friendly (TotalRecall)/not easy to make enquiries (Tango), no keyword highlighted (TotalRecall)/lack of bilingual alignment (Tango). For TotalRecall, students responded that there is no collocation analysis. For Tango, students responded that there are insufficient query options for parts of speech, and the system often freezes.

These are some of the problems that the students discovered when they used the corpus tools to help them translate. Apart from the problem of "not user friendly" and "not easy to make enquiries", all the other problems are relevant to or caused by the design of the corpus tools. While the students think the corpus tools are not user

friendly or not easy to use, part of the reason can be due to the system design, and part of it can be that the students have problems in enquiring using the corpus tools and finding the desired answers. It can be that the responding students are not familiar with the query strategies, or the students have insufficient English competency to analyse and synthesise the query results when making enquiries and undertaking translation tasks.

For all the other problems, the design of the corpus tools is also very important to the students because it has a big impact on how well the students can make use of the corpus tools. The design can also cause students to face problems or difficulties in the process of enquiries, and determine whether the students would enjoy using the corpus tools or not. Suggestions on the design of the corpus tools will be discussed in 5.3.2.

The results in 4.2.3—"Students' perceived difficulties and problems"—revealed the students' perceived difficulties and problems in corpus-assisted translation. The results triangulated with the findings in 4.2.1 based on the questionnaires. The students further explained their problems of query strategies in the group interviews, and provided deeper information about their difficulties in corpus-assisted translation.

There were eight categories of problems encountered by the students as shown in Table 4-13. Five of the eight categories of problems are related to the design of the corpus tools, and the other three categories are relevant to the students' query strategies. The former include: not user friendly, lack of keyword highlight, system often freezes, insufficient query option, and insufficient Chinese data. The latter includes: cannot find desired information, problem with word use and constructing sentence, and other problems.

The results in the group interviews triangulated with the results in the questionnaires. There are five repeated problems as noted in Table 4-13. Of the five repeated problems in the questionnaires and group interviews, there is only one problem that is related to query strategy—cannot find desired information. The other problems are related to the design of the corpus tools.

The query strategy problem was mentioned again in the group interviews; however with further details this time. The students mentioned about their problems of query strategies in the group interviews, and provided deeper information about the difficulties and problems they encountered in corpus-assisted translation. To sum up all the responses related to this topic, there were six types of problems relevant to query strategies: students cannot find desired information, problems with word use and constructing sentences, did not know how to choose the most suitable word from the query results, not very familiar with the corpus tools, had troubles recognizing the part of speech for the words, cannot figure out the desired answers quickly from the query results.

Evidence shows that the students still have many problems with the query strategies and synthesizing query results, and with figuring out their desired answers when using corpus tools to assist them translate. Although training and practice in query strategies had been provided to the students in the classes, more help should be given to some of the students in order to solve their individual problems with query strategies in corpus-assisted translation. On the other hand, when the students complained about the insufficiency of the corpus tools and all the other problems, it is necessary to step back and think about whether the students are capable of using the corpus tools with appropriate query strategies.

The results of the above three analyses show that students have major problems with grammar, word choice, and word use. The students think there are a number of problems with TotalRecall and Tango, while some of the problems are relevant to the students themselves and to whether they can manage to make use of the corpus tools properly, and draw desired answers from the tools. The group interview results show that the students have problems with query strategies and synthesizing the query results.

5.1.3 Benefits the Students Receive in Corpus-assisted Translation

A number of analyses were conducted to investigate the third research question: "What are the benefits the students receive through using corpus tools to assist them in translating? (For example, producing translation of better quality, natural target

language text in English, use of collocation, evidence of correct word use, etc.)." Several scholars have conducted teaching experiments to prove the value of corpora as an important resource in assisting translators and translation trainees to produce translation of better quality (Bowker, 1998; Gao, 2011; Rodríguez-Inés, 2010; Tseng, 2009; Zanettin, 1998). The results from analyses in 4.3 "Benefits the students receive in corpus-assisted translation" show significant improvements in the post-test and positive feedback from the students.

In the first part of the analysis (4.3.1), several analyses were conducted to compare the improvements made by the students in the post-test grade. Since the students were not allowed to use any tool to help them translate in the pre-test, and were allowed to use the corpus tools and the Yahoo online bilingual dictionary in the post-test, it can be assured that the improvements indicate the usefulness of the corpus tools to the students' translation. The average pre-test score of all the research participants was 52.1 out of 100, and the average post-test score was 77.9 out of 100. The average score improvement was 25.7 points for each student, and the average improvement rate was 49.3%. The results of the two-tailed test show that there is statistical significance [p= 0.023, Sig. (2-tailed) = 0.000] as shown in Table 4-16 and Table 4-17. The results from the Paired-Samples T Test show evidence of significant improvement for all the students in the post-test comparing to the pre-test. In other words, the students had made significant improvements in the post-test after they made use of the corpus tools to help them translate and answer the post-test questions. The amount of progress made by the students proves that the benefits the students receive in corpus-assisted translation are also substantial.

In the advanced analysis, students of different levels were examined to investigate the relationship between the students' translation ability and their average improvement rates in the post-test. The results show that the grade improvement rate of G1 students is 65.9%; G2 is 71.3%; G3 is 43.6% as listed in Table 4-18. The improvement rate of the medium level students (G2) is greater than the lower level students (G1) and the higher level students (G3). This means the corpus tools are most useful to the students of medium level (G2) since they made the most progress among the three levels of students.

Findings from the second analysis show the areas of improvements after using the corpus tools (c.f. 4.3.2) by analyzing the score distribution of the pre-test and post-test. The statistics in Table 4-10 show that there is a big reduction on the overall number of missing responses by 20%, as well as a decrease on the number of wrong answers by 6.6%. There are also increases on the frequency of score 3.0 and 4.0 in the post-test by 7.3% and 22.1% respectively. Therefore, evidence from the analyses shows that the benefits students receive in corpus-assisted translation are in the areas of motivation, accuracy rate, correct word choice (vocabulary use/collocation), grammar, and spelling when they were using the corpus tools to help them undertake the translation cloze test. Part of the results is consistent with the findings in Gao's (2011) research experiment. Gao found evidence that using the bilingual concordancer helped the students with their lexical choice, collocations, phrasing and word forms in their translation tasks. Among these, lexical choice, collocation and word forms are consistent with correct word choice (vocabulary use/collocation) and grammar in the current research. However, findings on improvements in the students' motivation, accuracy rate, and spelling were not mentioned in the literature.

In the third analysis for this research question, evidence was found on the students' perceived benefits of corpus-assisted translation from the data from the group interviews (c.f. 4.3.3). The findings show that the benefits of corpus-assisted translation for the students include the following aspects: corpus tools provide the students with better assistance and reference than dictionaries, helped them to solve translation problems independently, are helpful to collocation combinations, increased the accuracy of their translation, and helped them to construct their knowledge in translation. The majority of the responding students mentioned that the corpus tools are very helpful to their vocabulary, grammar and collocation, as well as the usefulness they received from the numerous example sentences provided. Furthermore, the results of this analysis triangulate with the results of the previous two analyses in 4.3 regarding the benefits of corpus-assisted translation. Therefore, strong evidence is collected to show how corpus-assisted translation can be very useful to the students' learning of translation.

Some of the findings of the students' perceived benefits of corpus-assisted translation are in line with several scholars' arguments that corpora are better

translation aids than dictionaries because they provide authentic language reference that dictionaries often do not contain, and help translators solve translation problems and confirm hypotheses (Kenning, 2010; Possamai, 2009; Rodríguez-Inés, 2009, 2010; Zanettin, 1998, 2002). Liou, et al. (2006) also explained why corpus tools are better than dictionaries. They contend that in corpus-assisted translation, learners can make use of their first language and native culture from the bilingual corpora as a scaffold to help them foster their learning of the new language—English (Liou, et al., 2006, pp. 78 & 91), and produce translation of better quality by making reference to the examples from the corpus tools. The students also mentioned that corpus-assisted translation helped them to construct their knowledge in translation and assisted them to solve translation problems independently. This is exactly what corpus as scaffold is meant for. The corpus tools have helped the students to construct their translation skills and knowledge, and cultivate the students in becoming independent learners that can solve translation problems by themselves. They become cognitive learners and know better what they are learning. This is exactly what a student-centred corpus-assisted translation approach is aiming for in the students. It is encouraging to see the learning outcomes of the approach from the students, which means the approach is really helping the students to learn what they should learn in such an approach.

5.2 Students' Overall Perceptions and Attitudes towards the Student-centred Corpus-assisted Translation Approach

Many scholars argue that corpora are helpful to translation teaching and learning in numerous ways (Aston, 1999; Bowker, 1998; Gao, 2011; Rodríguez-Inés, 2009, 2010; Tseng, 2009; Wang, 2011; Xiao and Yue, 2009; Zanettin, 1998). The majority of the existing literature suggests the value and usefulness of corpora to translator training in areas such as increasing language awareness of the translation trainees (Gao, 2011; Gilquin and Granger, 2010; Tseng, 2009; Wang, 2011; Zanettin, 2001), providing authentic language evidence and helping translators solve translation problems and confirm hypotheses (Kenning, 2010; Possamai, 2009; Rodríguez-Inés, 2009, 2010; Zanettin, 1998, 2002), and helping translators to produce translation of better quality (Bowker, 1998; Gao, 2011; Rodríguez-Inés, 2010; Tseng, 2009; Zanettin, 1998), etc. However, there is little literature that

investigates students' attitudes towards a corpus-assisted translation approach. In the present study, the students' perceptions and attitudes towards the student-centred corpus-assisted translation approach were revealed by analyzing the in-depth group interviews.

5.2.1 Students' Perceptions and Attitudes towards the Two Approaches

The results in 4.4 were based on the group interviews, and answered the fourth research question: "What are the students' perceptions of and attitudes towards the student-centred corpus-assisted translation approach? In comparison with a traditional translation approach, which approach do the students think is more helpful to their learning of translation?" In the analysis, the students' perceptions and attitudes towards the student-centred corpus-assisted translation approach versus the teacher-centred traditional grammar translation approach were compared and analyzed.

The results in 4.4.1, "The student-centred approach versus the traditional approach", show that the majority of the students preferred the student-centred corpus-assisted translation approach to the teacher-centred traditional grammar translation approach. There was only one student who thought the teacher-centred approach was more useful to translation, while the other fifteen students all agreed that they think the student-centred approach is better. These students gave reasons why they like the student-centred approach better than the teacher-centred approach, and why it is more helpful to their learning of translation. Some of the students commented that the corpus tools are really convenient and useful to their translation. Besides, the majority of the students explained that the main reason is because they had more opportunities to do actual practice in translation by enquiring with the corpus tools in the student-centred approach. This really helped them to remember what they have learned and increased their knowledge and skills of translation.

About the Single Outlier

When analyzing the students' attitudes towards the traditional and the student-centred teaching approaches, there was a single outlier student who thought

the traditional approach was better. This student was actually one of the top students in the class. It was interesting to learn that a student with such high English competency actually enjoyed the traditional teaching approach better and thought that she learned more from all the grammar rules for translation than from the corpus approach. One of the possible reasons could be the student's learning style. It could be because the outlier student simply liked to learn all the grammar rules to help her build up the foundation of constructing English sentences, which is an essential skill when translating from Chinese into English.

While the majority of the students preferred the student-centred approach to the teacher-centred approach, a small number of students believed that both approaches are important to their learning of corpus-assisted translation. The results in 4.4.2, "Both approaches are important", show an interesting contrast in students' views on the two teaching approaches. Six students highlighted the importance of the two approaches, and provided very specific insights into how the approaches could complement each other to help them learn translation more effectively. They believed that the first part of the course, the teacher-centred traditional grammar translation approach, helped them to build a foundation for the second part of the course, the student-centred corpus-assisted translation approach. This feedback not only confirms the value of traditional translation approach to the students' background knowledge of translation. It also provides very convincing evidence that the combination of the two teaching approaches can help the students to learn corpus-assisted translation in a more effective way than only implementing the student-centred corpus-assisted translation approach by itself.

The results in this part of the analyses revealed the students' perceptions and attitudes towards the two approaches. Comparisons between the two approaches show that fifteen out of twenty-three (65%) students believed that the student-centred approach is more helpful to their learning of translation, whereas only one student thinks the teacher-centred approach is more useful. Six students strongly believed that both of the approaches are equally important and had helped them to learn corpus-assisted translation more effectively. In conclusion, evidence from the group interviews shows that the majority of the students' perceptions and attitudes towards the student-centred corpus-assisted translation approach were very positive.

5.2.2 Evidence of Effectiveness of the Approach in Enhancing the Students' Learning Attitudes

The analyses in 4.5 answered the fifth research question: "Is there any evidence of the effectiveness of the approach in areas such as increase in students' level of interest, motivation, learner autonomy, and confidence in translating?" Most of the results in the analyses corresponded with the literature review in chapter 2.

In Tseng's (2009) research findings, he refers to students' improvements in their translation performance and increase of interest in translation through using a bilingual concordancer to assist their translation. In the present research, several student participants (S6, S9, S15, S21, S24) said that they experienced an increase in their interest in learning translation because of using corpus tools to assist them in translating. The results confirmed the usefulness of corpus tools in increasing the trainees' interest in learning translation.

The literature review of the present study mentioned increase of motivation after using corpus tools to assist trainees to translate. It also mentioned that using a corpus can be very helpful to trainees in solving translation problems. Evidence of this has also been discovered in the results of the study. Some student participants found that making enquiries in corpus tools about their translation problems increased their willingness in learning translation. The corpus tools can help them overcome the difficulties they encounter in translation; therefore, they have stronger motivation to do the translation tasks. They think that doing translation tasks in class becomes a more enjoyable work, and corpus tools have also helped them to become more motivated in learning translation. Therefore, the findings of the study support the literature review that using a corpus can help the students become more motivated in translating.

Translation trainees become more independent and autonomous in their learning if they can solve their translation problems. Scholars argue that corpora are better translation aids than dictionaries because they provide authentic language reference that dictionaries often do not contain, and help translators solve translation problems and confirm hypotheses (Kenning, 2010; Possamai, 2009; Rodríguez-Inés, 2009,

2010; Zanettin, 1998, 2002). The results of the study shows some student participants think that using corpus tools to assist them to translate has helped them to have a better idea of how to put the sentences together. The nature of the corpus has provided the students with sample sentences and templates for their translation. Several students said that they think translation has become easier to them after they use the corpus tools. Therefore, there is evidence that corpus tools help increase the students' level of independence in solving translation problems and enhance their autonomy in learning translation.

In addition, Gilquin and Granger (2010) and Gao (2011) reported about learner autonomy in the results of their research. In Gao's (2011) research experiment, he found that the students' ability to correct their own translation was improved through using a bilingual concordancer, as were the students' language awareness and learner autonomy (p. 265). Gilquin and Granger (2010) used a variety of activities to inspire the trainees they were teaching to make use of a corpus, make observations of language use and obtain understanding of the language. They observed that learners following the DDL teaching method are more engaged, enthusiastic, and eventually more autonomous in their language learning (p. 359).

In the present study, several students said that their interest in learning translation has been increased because of using corpus tools. They further explained that they became more autonomous in learning translation after they learned how to use a corpus to assist them in translating. They are no longer sitting and waiting for the teacher to explain the answers. Instead, they would do the translation tasks spontaneously in class, and understood that they were acquiring the knowledge once they start to check the information and answers by themselves. The results show that using a corpus to learn translation increases the learner autonomy of the students, which is in line with the findings of Gilquin and Granger (2010) and Gao (2011).

In Gilquin and Granger's (2010) recent study on students' attitudes towards the DDL teaching method and using a corpus in their language learning, they found that learner autonomy takes time to be achieved by the students. The situation also can be reflected in the current research. Only a few student participants in the group interviews said that they had become more spontaneous or autonomous in their

learning after they learned to use the corpus. It can be seen that an increase in learner autonomy may not be evident at the start, but the students become more and more autonomous as they encounter the fun of discovery learning in using corpus to assist them translate.

No literature has been found so far that stated using a corpus can help the trainees increase their level of confidence in the accuracy of their translated texts. It is quite interesting that the only place in the literature that mentioned about confidence was not about the students, rather the trainer. Wang (2011) discusses the situation of translation teaching in China, saying that innovative teaching approaches are needed in China, and corpora have provided an increasingly significant application in translation studies. Wang found that corpus-driven learning is a possible resolution to the difficulties that the student translator training in China is facing because it can help the trainers to become more confident in their teaching, and assist the students to become more efficient and precise in their translation (p. 287).

However, the findings in this paper reveal that many students agree that using corpus tools helps them increase their level of confidence in translation. Many students stated that with the availability of the corpus tools, it saves them a lot of time trying to figure out the answers from checking the dictionaries. It also boosts the level of confidence in the accuracy of their translation. Several students also said that translation has become easier to them with the availability of similar sentences and grammar patterns from the corpus, and they felt that they translate really well after they finish their work. Therefore, it is evident that corpus-assisted translation can help the students overcome their sense of difficulty in translation and increase their level of confidence in the accuracy of their translated texts.

As discussed at the end of the literature review, only a little research was found that addresses students' attitudes towards using corpus to learn translation. It is a very positive result knowing that using corpora can actually help the students become more interested, motivated, autonomous, and confident in the their learning of translation.

Concluding Remarks

The results of the present study are in line with the scholars' findings in the literature review. The results relevant to the students' attitudes from the group interviews show that more than two-thirds of all the interviewees expressed the opinion that their level of interest, motivation, learner autonomy, and confidence increased after using corpus tools to assist their translation. In particular areas such as increase of confidence and learner autonomy, the student-centred corpus-assisted translation approach helps the students feel positive about their learning and their ability to translate. They think the corpus tools are very helpful in providing reference to language usage and in the production of better translation. None of the interviewees expressed negative feedback on the usefulness of the corpus tools. Therefore, results from the study show that the majority of the students are positive towards corpus-assisted translation and found their learning attitudes enhanced after learning to use the corpus tools to assist them translate.

5.3 Recommendations

After conducting this case study, there are some recommendations that I would like to make: suggestions for translation teachers and the teaching approach, suggestions for the design of a concordancer, and suggestions for future research.

5.3.1 Suggestions for Translation Teachers and Teaching Approach

Scholars advocate the value of corpus tools in teaching and learning translation. Evidence in the results of the present study also shows that the corpus tools, TotalRecall and Tango, are useful in assisting the students translate and enhancing their learning attitudes. After implementing the student-centred corpus-assisted translation approach with the research participants for one semester, the value of the corpus tools is proved by the responses and feedback from the students, as well as the students' progress in the pre-test and post-test. It is therefore suggested to translation teachers to consider implementing this teaching approach in their translation courses.

After implementing the teaching approach with the students for one semester, there are some suggestions for teachers who also wish to use the approach in their translation classes. Being able to use query strategies appropriately is very important in corpus-assisted translation. However, the results show that there are some enquiry strategies that were not formed by some of the students even though they were given all the training and practice. Since the research participants' English was intermediate level, there were some problems that were difficult for some of the students to overcome. As discussed in 5.1.2, "Difficulties and problems the students encounter in corpus-assisted translation", there were several problems relevant to query strategies: not very familiar with the corpus tools, students cannot find desired information, problems with word use and constructing sentences, did not know how to choose the most suitable word from the query results, cannot figure out the desired answers quickly from the query results, had troubles recognizing the part of speech for the words.

Therefore, it is suggested to teachers if they were to implement the teaching approach, the following problems needs to be paid attention to. The students need more practice on the corpus tools and to have their problems in using the corpus tools solved, so they will become familiar with using the tools. They need the ability to synthesize the query results, and to use words appropriately in their translation. More demonstrations from the teacher on principles of synthesizing the query results are needed to help students acquire the knowledge of how to choose the appropriate word from the query results, extract correct word use and grammar rules, and how to construct sentences. Besides, reviewing and discussing the problems encountered by the students in class are also important ways to help the students solve individual problems in corpus-assisted translation.

Some of the students had difficulties recognizing the part of speech to be filled out in the translation cloze test in the pre-test and post-test as shown in the analysis in chapter 4. These students also had problems choosing the correct query choice when they were using the Tango collocation concordancer to enquire about their translation problems. Therefore, many of the students responded in the group interviews and questionnaires that they think Tango is not easy to use. This is a fundamental problem in the students' English competency, and it may take a lot of

time introducing grammar rules to students to help them become familiar with the part of speech for most of the words. It needs to be considered when implementing the approach with students of intermediate level or a lower level of students. Therefore, some challenges do exist for implementing a corpus-assisted translation approach to students of intermediate level.

In addition to the problems with query strategies, there is another problem that needs attention. For the lower level students in the class, the results show that they had difficulties figuring out the desired answers in the post-test even with help from the corpus tools. Even if they found the answers, they still had difficulties synthesizing the information and using it to answer the questions correctly. For these students, they need extra help from the teacher and fellow classmates. It is suggested to assign students of a better English level to become their learning buddy. They could sit next to each other in the translation class, so they can ask their learning buddy questions of enquiry when practicing making use of the corpus tools to help them translate. The teacher also needs to pay extra attention to these students in class, and check if they do understand and can make use of the query strategies to enquire with the corpus tools so that these students can also receive benefits from corpus-assisted translation.

5.3.2 Suggestions for Design of Concordancer

The students mentioned several problems with the corpus tools, TotalRecall and Tango, in the questionnaires and group interviews. As discussed in 5.1.2, "Difficulties and problems the students encounter in corpus-assisted translation", the design of the corpus tools has a big impact on how well the students can make use of the tools, how they like to use the tools, and the problems and difficulties they may encounter when using them. Based on the comments made by the students, it is suggested that the design of the corpus tools can be improved in the following four ways.

First of all, the students responded that there is insufficient data in both TotalRecall and Tango. It is one of the reasons that caused the students not being able to find the desired answers from the corpus tools. The bilingual corpus in

TotalRecall, Sinorama, included a collection of Sinorama magazines from 1990 to 2000. Since the corpus was constructed, it has not been updated with any further new material. The same situation happened to the BNC corpus in Tango and other corpora in the two corpus tools. However, language changes over time and new words are generated as people use and create them. If the corpora in the corpus tools were not updated, the value of the corpus tools will decrease gradually. It is therefore suggested that the corpora should be updated from time to time, so that they provide the latest information to the users.

Secondly, students mentioned that there is no keyword highlighted in TotalRecall, and a lack of bilingual alignment in Tango. For Tango, both languages are highlighted if the students select the Sinorama bilingual corpus. However, if they select the BNC corpus, only English results will be displayed because it is a monolingual corpus. However, the students wish there were bilingual alignment in Tango, which is next to impossible to achieve. For TotalRecall, when making enquiries with the tool, only the query language is highlighted in the bilingual results. For example, if one uses an English keyword to make the enquiry, only the English keyword is highlighted in the bilingual results, but not the corresponding equivalent of Chinese to the English keyword, and vice versa. The students hope that the corresponding equivalent translation to the query keyword can also be highlighted in the results. It is also suggested that both languages should be highlighted in the results for the Sinorama bilingual corpus in Tango.

Thirdly, many students complained that the Tango system often freezes when they are enquiring in it. This problem discouraged them from using the tool, and stopped them from continuing to use it. It is suggested that the system should be debugged so that stability can be maintained. Many students mentioned that there are insufficient query options for parts of speech in Tango. At present, there are only choices of nouns, verbs, and adjectives. However, the students wish that there were also choices of conjunctions , phrases , prepositions , and adverbs. It is advised that more query options for parts of speech should be added to Tango, so it will be easier for the users to make enquiries.

Finally, enquiring in a monolingual English corpus, such as BNC, is indeed a difficult task for students of intermediate level. There is so much vocabulary that the students do not know, and the structure and meaning of the example sentences can be difficult to comprehend without a Chinese translation. However, it is another gigantic task to translate a huge corpus such as BNC into Chinese as discussed in the second point. Therefore, it is advised that a dictionary should be built within the Tango system. The students can click the dictionary button, and move the mouse to the word in question, and the Chinese meaning of the words is displayed immediately. In that case, the students can check the meaning of the words in the query results easily and this increases their comprehension of the query results. Consequently, enquiring in Tango becomes easier to the students, and it also encourages the students to make use of Tango more often. Combining dictionaries with corpus tools is the future trend for the development of corpus tools, and should be seriously considered by the designers of concordancers.

5.3.3 Suggestions for Future Research

Further studies are suggested to investigate the usefulness of and students' attitudes towards corpus-assisted translation with two groups of students of similar background and English level. Differences in the students' performance in their translation can be observed when implementing the teaching approach with an experimental group and a control group. For the control group, the teacher can use the traditional grammar translation approach to teach the course, and use the student-centred corpus-assisted translation approach with the experimental group. If so, the teacher can start the training of corpus-assisted translation to the students from the experimental group from the beginning of the semester, which allows more time for the students to be more familiar with the query strategies and with using corpus tools to assist their translation. The teacher also will have more time to help the students solve their individual problems in corpus-assisted translation.

As far as evaluation tests are concerned, the teachers can continue using the translation cloze tests to evaluate the students' progress and query strategies in corpus-assisted translation in the pre-test and post-test. It is a good way to demonstrate corpus enquiry strategies with the questions. It is also a useful method to

bridge the training to full sentence translation because it is much easier than translating full sentences. Besides using translation cloze tests, it is also suggested that teachers use full sentence translation of a short paragraph in the assessment pre-test and post-test to evaluate translation skills. This helps the teachers to observe more aspects of the usefulness of corpus-assisted translation to the students. Comparisons can also be made to compare the differences in the students' translation tasks between the two groups.

5.4 Conclusions

There are four parts to the conclusion of this research: reflections, implications, contributions, and conclusions.

5.4.1 Reflections

It was the first time for me to design such a curriculum using the student-centred corpus-assisted translation approach to teach a translation class. The process proved to be challenging yet fulfilling. If I were to conduct the research again, there are a few things that I probably would not do the same way as I did this time. I would revise the design of the pre-test and post-test on the students' translation competency and add full sentence translation questions to evaluate the usefulness of the approach in the students' performance. I would also start teaching the students to use the corpus tools from the beginning of the semester. This allows the students to have more time to learn about these tools and to make use of them in their translation. It should be even more helpful to the students' improvements in their translation skills and building up their attitudes in using corpus tools to learn translation.

I have found the student-centred corpus-assisted translation approach to be very useful to the students in learning translation and inspiring them to have stronger motivation and better attitudes in learning translation. I firmly believe that this approach is very helpful to the translation students undertaking English majors, and hope that this approach could be promoted and utilized more commonly in Taiwanese universities, and to other learners of Chinese and English translation.

As a researcher and teacher, I have also found the research very helpful to innovative teaching in my personal teaching career. From designing the research and the translation curriculum, to implementing the curriculum and the teaching approach to the students in the translation module, I have also seen my improvements in teaching a translation course with a completely new approach with the student-centred methodology. I had a great sense of achievement because of receiving positive feedback from the students after classes, in the questionnaires and group interviews. The research study confirms the value of the teaching approach and it gives me a new perspective and an alternative approach after teaching translation modules for several years. Therefore, not only the students have received benefits from the corpus-assisted translation approach, but also the teacher herself has experienced a breakthrough in teaching methods. I would therefore strongly recommend to teachers to try and use this approach to teach their students.

However, the limitations of the study should be noted. Since it is a small-scale research study with a sample of 29 subjects that lasted one semester in a private university in Taiwan, caution is necessary so that too wide generalization are not made with this study. However, the researcher has been able to gather conclusions which do represent the 29 student participants who took this translation module. The results of the study may not be representative, but this field of study is definitely worth investigating.

5.4.2 Implications

In this research, the Taiwanese college students' use of, and attitudes towards, corpus-assisted translation was investigated by implementing a teaching experiment to students. This process was reported and the results analyzed and discussed. Since this kind of approach is still a relatively new approach to be adopted in Taiwanese universities for students undertaking English majors, the existence of the present study provides teachers and researchers with practical references of how the approach works with students of intermediate level.

The data and results based on the five research questions provided information related to several aspects of the study. They reveal the students' use of the corpus

tools in terms of how they make use of the tools in their translation tasks, the difficulties and problems confronted by the students, and the benefits they receive in corpus-assisted translation. They also uncover the students' attitudes towards such a new teaching approach, including their perceptions and attitudes towards the traditional grammar translation approach versus the student-centred corpus-assisted translation approach, and how the second approach has enhanced their learning attitudes in translation.

The results of this research inform teachers and researchers of how the approach works with college students, and how it has helped them to learn translation, and their attitudes towards this approach. They can help teachers who are seeking a new approach to teach a translation module to see the value of the corpus tools and how they may choose a different methodology to teach their course. They also help researchers to see a prospective field to be studied in order to advocate the usefulness of corpus tools in translation teaching and research. Hopefully, by sharing the experiences and results of implementing the corpus-assisted translation approach, attention will be drawn to this area of study, and more upcoming teaching experiments and research will be conducted to study the usefulness of corpus-assisted translation.

5.4.3 Contributions

This research hopes to provide translation teachers with the experience of how corpus can be applied in a translation course to assist students with their Chinese to English translation. Most importantly, it aimed to discover answers to the question of how helpful are the corpus tools in assisting the students' learning of translation, and report the students' perceptions and attitudes towards using the corpus tools. The results of the study consolidate existing research on using a corpus to learn translation. They build on the findings of other scholars and researchers and add more specific understanding of how students make use of corpus tools to assist them translate, and how they feel about using corpus tools to help them learn translation.

Another important contribution of this research is to share the experience of implementing a student-centred corpus-assisted translation approach to a group of

Taiwanese students at university level. It gives translation teachers insights into how students use corpora to learn translation, and a better understanding of the students' attitudes towards using corpus to learn translation. This research has implications for translation teachers and offers an alternative teaching approach for translation courses.

Therefore, the contribution of this research is to shed some light on the student-centred corpus-assisted translation approach for translation teachers in Taiwanese universities and researchers of translation in Taiwan. It is hoped that it can bring about some change and innovation in translator training and translation teaching approaches in Taiwan. It is also hoped that it will possibly bring about a reform for translation pedagogy in Taiwan.

5.4.4 Conclusions

As mentioned in the introduction of the thesis, I had observed the problems that Taiwanese college students of English-majors were facing in learning Chinese to English translation—misuse in vocabulary and collocation. As I was concerned about these problems and was searching for solutions to these problems, I noticed that a student-centred corpus-assisted translation approach could be the possible solution to better the situation. After implementing the approach in a translation class, I have confirmed for myself the value and usefulness of the approach to the students.

Besides all the usefulness and benefits of corpus-assisted translation, there is another important finding in the present study. While all the scholars and researchers advocate the value and usefulness of corpus tools to the trainees' learning of translation, there are some difficulties in corpus-assisted translation that are seldom noticed or discussed. The findings in the study provide a different perspective by revealing the difficulties faced by students of lower English level when they use the corpus tools to assist them translate. They have more difficulties in making use of the corpus tools and receive less benefit than the students of a better English level. Therefore, extra training on grammar usage and corpus query strategies are needed for these students. This is something that teachers also need to keep in mind when implementing the corpus-assisted translation approach. This is one of the important

findings in the present study.

To sum up, the results are in line with the literature review, and prove that corpus-assisted translation is not only helpful to the students' production of translation, but also useful in enhancing their learning attitudes. The present study adopted a student-centred teaching approach and used the corpus tools as scaffolds to help the trainees become cognitive learners of translation, and guided them to construct knowledge of translation through the process of enquiring in the corpus tools by themselves. As a result, the student-centred corpus-assisted translation approach has successfully helped the students to acquire the abilities to solve translation problems independently by consulting the corpus tools, and thus become autonomous learners.

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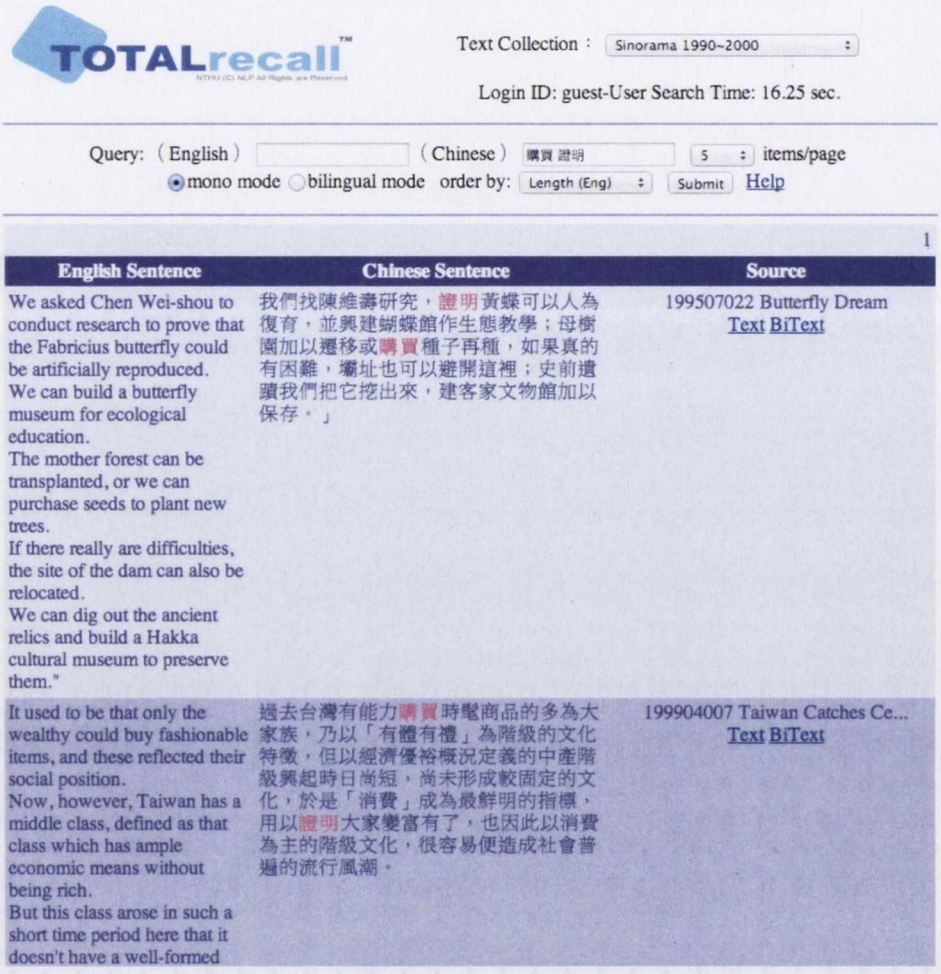
Appendix 1: Query Snapshots of TotalRecall and Tango

TotalRecall Query Snapshot



Query key word: 購買 證明 Gou Mie Jeng Ming (Proof of purchase)

Tango Query Snapshot

Query key word: difference

Parts of speech: Noun

Query option: AN (Adjective + Noun)

Appendix 2: Ethical Approval From the School of Education Ethics Committee, Queen's University Belfast

School of Education

Research Office

Memorandum

To Shih-Ping Cheng

From Ulrike Niens, Chair, Ethics Committee

Date 15 August 2011

Distribution Supervisor,
School of Education Office File

Ethics Committee

Dear Pearl

The School of Education Ethics Committee has approved your proposed research.
Note that this approval applies only to the procedures outlined in your submission.
Any departure from these must be discussed with your supervisor, and may require additional ethical approval.
The Committee wishes you every success with your research.

***Note for the supervisor**: it is the responsibility of the supervisor to add any research projects involving human participants, material or data, to the University's Human Subjects Database for insurance purposes. (The Human Subjects Database is accessible through QOL under 'My Research').*

Appendix 3: Informed Consent for the Department Head of the Research Group

Information Letter for Department Head

I am writing to ask you to consider allowing me to conduct my research in the translation course of the Department of Foreign Languages and Literatures in the University. Please read the following information carefully because it contains important information about the research. If you agree to my undertaking this research, please then sign the consent form.

Who is the researcher?

My name is Shih-Ping Cheng (Pearl). I am a student of the Doctor of Education (TESOL) Programme in Queen's University Belfast, United Kingdom.

What is the research about?

I am conducting this research to collect data for my dissertation project. The title of my dissertation is "The Effectiveness of Using Corpora to Improve the Quality of Chinese-English Translation by Students."

What are the aims of the research?

This research aims to find out how to assist Taiwanese university students undertaking English-majors to improve the quality of their Chinese-English Translation by teaching a translation course with a Student-centred Corpus-based Translation Approach. I am interested in finding out the effectiveness of using corpora to assist the students to produce translation of better quality and its impact on the students' English collocation competency. The purpose of the research is for the benefit of the students and future translation education. I will be happy to supply a copy of my dissertation to the Department when it is completed.

What will happen in the research?

I am proposing to teach this translation course and do my research at the same time. If you allow me to conduct my research in the translation class, data will be collected from the following methods. First of all, there will be a small translation test in the beginning of the semester to ensure that the level of difficulty in the

curriculum meets the needs of the students. Throughout the semester, classroom observation will be conducted and field notes taken by the researcher as a normal part of the course as the class proceeds. There will be small quizzes on collocation at the end of each class to see the students' progress in accuracy of collocation. The students can express their thoughts and feedbacks towards the course in the online Moodle system. Questionnaires and group interviews will be conducted by the researcher in the middle and at the end of the semester. The interviews will take about 30 minutes for each group of 5-6 people, and will be audio recorded. Limited error analysis will be conducted on translation tasks from the mid-term and final exams to check the students' improvement in quality of translation. In conclusion, apart from the questionnaires and group interviews, everything is what will happen in the course anyway.

What will happen to the collected data?

The collected data will be completely confidential and anonymous, and will not be used for other purposes or by other people. The names of the University and individual students will be entirely anonymous and will not be mentioned in the dissertation. The collected data will be protected and stored in the researcher's personal computer which requires PIN code to access, and will ultimately be destroyed after the researcher has passed the VIVA for her Doctoral degree.

What happens if the students changed their mind and do not want to participate in this research anymore?

I do understand that the students have the choice to participate in the research. Participation in the research is completely voluntary. Therefore, the students can withdraw from the research at any time without giving any reason. This decision will not affect their grades and rights to this course.

Who do I contact if I have questions about the research?

If you have any questions regarding this research, please feel free to contact me via email: scheng01@qub.ac.uk or my supervisor Dr. Joy Alexander: j.alexander@qub.ac.uk. Thank you very much.

Consent Form

Project Authority: School of Education, Queen's University Belfast, United Kingdom

Purpose of Project: Dissertation for Doctor of Education (TESOL) Programme

Name of Researcher: Mrs. Pearl Shih-Ping Cheng

Please
Tick

___ 1. I have read and understood the information letter regarding the research and its purposes.

___ 2. I understand that the collected data will be completely confidential and anonymous, and will not be used for other purposes or by other people.

___ 3. I understand that the names of the University and individual students will be entirely anonymous and will not be mentioned in the dissertation.

___ 4. I understand that the collected data will be protected and will ultimately be destroyed after the researcher has passed the VIVA for her Doctoral degree.

___ 5. On behalf of the Department of Foreign Languages and Literatures of the University, I agree to allow this research to be conducted in the translation course.

Name of Department Head _____

Signature of Department Head _____ Date _____

Appendix 4: Informed Consent for the Student Participants of the Research Group

Information Letter for Student Participants

Thank you very much for your interest in my research. I sincerely invite you to consider participating in this research as participants. Please read the following information carefully because it contains important information about the research and your rights as participants. If you agree to participate in this research, please then sign the consent form.

Who is the researcher?

My name is Shih-Ping Cheng (Pearl). I am a student of the Doctor of Education (TESOL) Programme in Queen's University Belfast, United Kingdom.

What is the research about?

I am conducting this research to collect data for my dissertation project. The title of my dissertation is "The Effectiveness of Using Corpora to Improve the Quality of Chinese-English Translation by Students."

What are the aims of the research?

This research aims to find out how to assist Taiwanese university students undertaking English-majors to improve the quality of their Chinese-English Translation by teaching a translation course with a Student-centred Corpus-based Translation Approach. I am interested in finding out the effectiveness of corpora in assisting the students to produce translation of better quality and its impact on the students' English collocation competency. The purpose of the research is for the benefit of the students and future translation education.

What will happen in the research?

I am going to teach this translation course and do the research at the same time. Apart from questionnaires and group interviews, everything is what will happen in the course anyway. If you agree to participate in this study, data will be collected from the following methods.

- Classroom observation will be conducted and field notes taken by the researcher
- Data from initial translation test, small quizzes on collocation at the end of each class, translation tasks from the mid-term and final exams
- Questionnaires and audio recorded group interviews will be conducted by the researcher in the middle and at the end of the semester, which will take about 30 minutes for each group of 5-6 people
- Feedbacks expressed on online Moodle system

What will happen to the collected data?

The collected data will be completely confidential and anonymous, and will not be used for other purposes or by other people. Your names and personal information will not be mentioned in the report. The collected data will be protected and stored in the researcher's personal computer which requires PIN code to access, and will ultimately be destroyed after the researcher has passed the VIVA for her Doctoral degree.

What happens if I changed my mind and do not want to participate in this research anymore?

Participation in the research is completely voluntary. Therefore, you can withdraw from the research at any time without giving any reason. This decision will not affect your grades and rights to this course.

Who do I contact if I have questions about the research?

If you have any questions regarding this research, please feel free to contact me via email: scheng01@qub.ac.uk or my supervisor Dr. Joy Alexander: j.alexander@qub.ac.uk. Thank you very much.

Consent Form

Project Authority: School of Education, Queen's University Belfast, United Kingdom

Purpose of Project: Dissertation for Doctor of Education (TESOL) Programme

Name of Researcher: Mrs. Pearl Shih-Ping Cheng

Please Tick

___ 1. I have read and understood the information letter.

___ 2. I understand that the collected data will be completely confidential and anonymous, and will not be used for other purposes or by other people.

___ 3. I understand that my name and personal information will not be mentioned in the report.

___ 4. I understand that the collected data will be protected and will ultimately be destroyed after the researcher has passed the VIVA for her Doctoral degree.

___ 5. I understand that participation in the research is completely voluntary. I can withdraw from the research at any time without giving any reason.

___ 6. I agree to join this research voluntarily as a student participant.

Name of Participant _____

Signature of Participant _____ Date _____

Appendix 5: Midterm Questionnaire

Midterm Questionnaire

Translation Learning and Using for Taiwanese University Students

Informed Consent Declaration

I volunteer to participate in the Questionnaire administered by Shih-Ping Cheng, a student of Doctor in Education (TESOL) of Queen's University Belfast. I understand and agree that the Questionnaire is anonymous, and the content of which will only be used for academic research purposes.

PART 1 : Personal Background Information (Single-choice questions and open questions)

A. What is your gender? □Male □Female

B. Which year are you in university? □Freshman □Sophomore □Junior □Senior □Other, please specify _____

C. How old are you? _____

D. Have you ever taken any courses related to translation before electing this translation course? □No □Yes, please specify the name of the course _____

PART 2 : Single-choice questions (please tick in the appropriate box)

When undertaking Chinese-English translation tasks (source language refers to Mandarin, target language refers to English):

1. I often do not know how to solve translation problems.
   □5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree
2. I often do not know how to translate terminologies.
   □5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree
3. I often do not know how to distinguish between collocation usages.
   □5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree
4. I often do not know how to choose the most appropriate word/phrase to express the meaning of the source language.
   □5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree

5. I am very confident in the accuracy of my Chinese-English translation.

   □5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree

6. I am very confident in the accuracy of the grammar in my translated English text.

   □5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree

7. I am very confident in the accuracy of the terminology in my translated English text.

   □5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree

8. I am very confident in the accuracy of the collocation usage in my translated English text.

   □5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree

9. I would acquire knowledge related to Translation spontaneously in my free time.

   □5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree

PART 3 : Open Questions (please write down your thoughts to these questions)

10. What is the most difficult problem that you face when undertaking a Chinese-English translation task (e.g. Chinese-English translation assignment of this course)? _____

11. What is the most common problem that you face when undertaking a Chinese-English translation task?

    _____

12. How do you usually solve the problems you face in translation?

    _____

13. What do you think about the level of difficulty for the lecture content of this course?

    _____

14. What do you think about the level of difficulty for the assignments of this course?

    _____

15. Which part of the course do you learn the most?

    _____

16. In your opinion, is there anything that the course is short of?

    _____

17. What is your expectation towards this course?

    _____

18. Do you have any suggestions or advice towards this course?

    _____

Appendix 6: Final Questionnaire

Final Questionnaire

Translation Learning and Using for Taiwanese University Students

Informed Consent Declaration

I volunteer to participate in the Questionnaire administered by Shih-Ping Cheng, a student of Doctor in Education (TESOL) of Queen's University Belfast. I understand and agree that the Questionnaire is anonymous, and the content of which will only be used for academic research purposes.

PART 1: Personal Background Information (Single-choice and open questions)

A. What is your student number? _____ (For the purpose of data analysis)

B. Are you taking any other translation courses this semester?

□No □Yes, please specify the name of the course _____

PART 2: Single-choice questions (please tick in the appropriate box)

When undertaking Chinese-English translation tasks (source language refers to Mandarin, target language refers to English):

1. I often do not know how to solve translation problems.

   ☐ 5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree

2. I often do not know how to translate terminologies.

   □5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree

3. I often do not know how to distinguish between collocation usages.

   □5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree

4. I often do not know how to choose the most appropriate word/phrase to express the meaning of the source language.

   □5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree

5. I am very confident in the accuracy of my Chinese-English translation.

   □5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree

6. I am very confident in the accuracy of the grammar in my translated English text.

   □5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree

7. I am very confident in the accuracy of the terminology in my translated English text.

   □5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree

8. I am very confident in the accuracy of the collocation usage in my translated English text.

   □5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree

9. I would acquire knowledge related to Translation spontaneously in my free time.

   ☐ 5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree

Corpora refers to "Total Recall and Tango Concordancer" in the following questions; Translation practice as "In-class practice or assignments of Chinese to English translation."

When undertaking translation practice…

10. I am capable of acquiring the information that I need by making enquiries in Corpora.

    □5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree

11. I often use Corpora to check the words/phrases that I cannot translate.

    □5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree

12. Checking terminologies in Corpora can help me to use terminologies accurately in the translated text.

    □5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree

13. Checking grammar of words/phrases in Corpora can help me to use grammar accurately in the translated text.

    □5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree

14. Checking collocation of words/phrases in Corpora can help me to use collocation accurately in the translated text.

    □5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree

15. After checking collocation usage in Corpora, now I know how to find accurate collocation usage.

    □5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree

16. After checking collocation usage in Corpora, I think my capability of using collocation has been greatly improved.

    □5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree

17. Making enquiries in Corpora does not do any help in solving translation

problems that I encounter when undertaking translation tasks.

□5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree

18. I often cannot find the reference answers that I need when making enquiries in Corpora.

□5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree

19. Enquiring Corpora with translation problems can motivate my interest in learning translation greatly.

□5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree

20. Enquiring Corpora with translation problems makes me enjoy the translation practice in class even more.

□5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree

21. Enquiring Corpora with translation problems can increase my confidence in the accuracy of my translated text greatly.

□5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree

22. I will continue using Corpora in the future to help me solve translation problems.□5 Strongly agree □4 Agree □3 No Comment □2 Disagree □1 Strongly disagree

PART 3 : Open Questions (please write down your thoughts to these questions)

23. When making enquiries in Corpora, how many sample sentences from the search results do you look into? _____

24. If there are sample sentences on the first page of the Corpora search results that answers your enquiry question, would you still continue checking the sample sentences on the second page? Why? _____

25. How frequent do you use TotalRecall and Tango corpus tools? For example: you made 10 corpus enquiries when you were undertaking a translation task (made 10 key word searches), of which you used TotalRecall 6 times, and Tango 4 times. The frequency ratio is 6:4, etc.

TotalRecall : Tango = _____

26. Please explain your level of preference towards TotalRecall and Tango corpus tools respectively.

TotalRecall: _____

Tango: _____

27. Please explain your comments on how TotalRecall solves your translation

problems. (Very helpful, helpful, not much help, helpless)

_____

28. Please explain your comments on how Tango solves your collocation problems. (Very helpful, helpful, not much help, helpless)

_____

29. Please elaborate whether enquiring Corpora with translation problems is helpful to your learning of translation? Why? (Very helpful, helpful, not much help, helpless) _____

30. Please recall the situation when you used corpus for the first time in class. What are the differences if you compare it with how you use corpus now?

_____

31. What are the merits and shortcomings of using TotalRecall bilingual concordancer to assist translation?

Merits : _____ Shortcomings : _____

32. What are the merits and shortcomings of using Tango collocation concordancer to assist translation?

Merits : _____ Shortcomings : _____

33. Is translation a very difficult task to you? What are the most difficult parts?

_____

34. What is the most common problem that you face when undertaking a translation task? How do you usually solve these problems?

_____

35. What do you think about the level of difficulty for the lecture content of this course? What do you think about the level of difficulty for the assignments?

_____

36. Which part of the course do you learn the most? In your opinion, is there anything that the course is most deficient in?

_____

37. Does the lecture content meet your expectations towards this course? Do you have any suggestions or feedbacks towards this course?

_____

Appendix 7: Student Group Interview Questions

Student Group Interview Questions

Group # ____ Interview Time _____ Student # _____ Name _____

Please try to provide examples as you answer the questions.

Translation refers to "Chinese to English translation" in the following questions.

I. Corpus Enquiry Strategies:	**Student Response**
1. What is your strategy if the key word you used to search cannot provide any results in the Corpora? Do you use synonyms? Do you use English to search (instead)?	
2.Did you discover any problems when you were using TotalRecall and Tango? How do you decide which one to use?	
3. How are the two Corpus tools different from bilingual dictionaries? (e.g. How are they different from web-based dictionaries?)	
4. Are you capable of using Tango? Are the collocation combinations provided by Tango insufficient?	
5. Are you capable of figuring out grammar patterns from the sample sentences? How do you make up your mind in cases when there are several collocation combinations to choose from?	
6. The process of translation basically includes analysis, synthesis, and transfer. When using collocation, you need to analyze and make judegements about which word is the key word. Do you know how to make the judgement for the parts of speech of the key words and collocations?	
7. Do you know how to turn translation problems into a series of corpus enquery questions? Please give examples to explain how you do this?	

8. Do you think the course has provided sufficient training with corpus enquiry strategies? How helpful is it in assisting you to learn to enquire corpus with your translation problems?	
II. Autonomous Learning and Learning Motivation	
9. How effective is using corpus tools to enquire about your translation problems in inspiring your interest in learning translation?	
10. How helpful is using corpus tools to enquire about your translation problems in increasing your willingness in learning translation? For example: having more enjoyment in undertaking the translation tasks in class.	
11.How helpful is using corpus tools to enquire about your translation problems in increasing your confidence in the accuracy of your translated texts?	
12. Do you often use corpus to enquire about problems in other assignments or English language usage other than the corpus-assisted translation class? How often do you use it? Please explain with examples.	
13. What kind of assistance do you receive from TotalRecall bilingual corpus in your learning of translation? Why?	
14. What kind of assistance do you receive from Tango collocation concordancer in your learning of collocation? Why?	
15. What kind of assistance do you receive from the AWETS website, which combines TotalRecall and Tango on the same website, in your learning of translation? Why?	
III. Use of Corpora:	
16. What kind of difficulties did you encounter when you were enquiring in the corpora with your translation problems? Please explain with an example.	
17. Can you observe and synthesize the query results and find your desired answers quickly when you were enquiring in the corpora? Why or why not?	

18. How helpful is enquiring in the corpora in solving your translation problems? Which areas are helpful and which are not? Why? For example: vocabulary, terminology, grammar, collocation usage, etc.	
IV. Curriculum and Pedagogy:	
19. What do you think are the differences between the student-centred corpus-assisted translation approach (after midterm exam) and the teacher-centred traditional translation approach (before midterm exam)? Which teaching approach is more helpful to your learning of translation? Why?	
20. Did you manage to construct your own knowledge of translation when you were using corpora to assist you to translate? How did it happen?	
21. After finishing the translation course of this semester, do you think that you have possessed the ability to solve translation problems independently? Why?	
22. Other comments or suggestions.	

Appendix 8: Pre-test and Post-test

Translation Cloze Tests

According to the meaning in its contexts, translate the underline Chinese words or phrases into English of correct collocation or vocabulary usage, so that the English sentence is grammatically correct

翻譯克漏字測驗

請依照中文句子的語意，將畫底線的中文部份翻譯成符合文法和搭配詞用法之英文。

1. 中文是一個地區性差異很大的語言。住在不同地區的人常常說不同方言。
   Chinese is a language with many _____ differences. People living in different areas often speak different dialects.
2. 菜單是用來告知顧客餐廳提供的各式餐點及其價位。
   A menu serves to _____ customers about the varieties and prices of the dishes offered by the restaurant.
3. 科學家們密切研究這隻小北極熊。牠的一舉一動都被仔細觀察和記錄。
   The baby polar bear is being _____ studied by the scientists. Every move he makes is carefully observed and documented.
4. 在精湛的演出後，音樂家從激賞的觀眾贏得滿堂掌聲。
   After his superb _____, the musician received a big round of applause from the appreciative audience.
5. 自來水公司定期檢修管線和監測供水以確保我們飲水的安全性。
   The water company inspects the pipelines and _____ the water supply regularly to ensure the safety of our drinking water.
6. 今年即將舉行的東亞高峰會將聚焦在幾項重要的議題上：節能、糧食短缺及全球暖化。
   This year's East Asia Summit meetings will focus on critical _____ such as energy conservation, food shortages, and global warming.
7. 林老師知道玫琳的學業表現優異，因此他大力推薦她申請入大學。
   Having fully recognized Mei-ling's academic ability, Mr. Lin _____ recommended her for admission to the university.

8. 天氣預報員提醒民眾未來幾天溫差大，建議大家每日查看天氣預報，並因應溫度高低來穿衣服。

The weatherman has warned about drastic temperature change in the next few days, and suggested that we _____ the weather on a daily basis and dress accordingly.

9. 許多人認為棉布是炎炎夏日中穿起來最舒適的布料。

Many people think cotton is the most comfortable _____ to wear in hot weather.

10. 由於新款休旅車的引擎問題，這家汽車公司決定要將它們從市場上召回。

Because of the engine problem in the new vans, the auto company decided to _____ them from the market.

11. 在團隊運動中，全體隊員們如何團結合作比他們個人如何表現更重要。

In team sports, how all members work as a group is more important than how they perform _____.

12. 儘管她有身體上的缺陷，這位年輕的盲人鋼琴家設法要克服所有的阻礙以贏得國際大賽的冠軍。

Despite her physical disability, the young blind pianist managed to overcome all _____ to win the first prize in the international contest.

13. 太陽系裡的每個行星循自己的軌道環繞太陽，這可使他們免於互相碰撞。

Each of the planets in the _____ system circles around the sun in its own orbit, and this prevents them from colliding with each other.

14. 王教授以對經濟領域的貢獻而聞名。他被找來協助政府進行財政改革計畫。

Professor Wang is well known for his contributions to the _____ of economics. He has been recruited to help the government with its financial reform programs.

15. 大部分的地震因規模太小而不會被注意到；它們只能被靈敏的儀器偵測到。

Most earthquakes are too small to be noticed; they can only be detected by _____ instruments.

16. 由於維基解密揭發全世界政府的秘密，許多國家擔憂他們的國家安全資訊可能會被洩露。

With Wikileaks releasing secrets about governments around the world, many countries are worried that their national security information might be _____.

17. 恐怕我們無法相信你的話，因為我們目前已收集到的證據與你所言不符。

I'm afraid we can't take your word, for the_____ we've collected so far is not consistent with what you said.

18. 如果你想退回所購買的任何商品，將會需要商店收據作為購買證明。

You'll need the store receipt to show proof of _____ if you want to return any items you bought.

19. 約翰的母語為英文，因童年時期在西班牙成長，所以西班牙文很流利。

Spending most of his childhood in Spain, John, a native speaker of English, is also _____ in Spanish.

20. 沒有人知道火災是怎麼發生的。警方開始著手調查其原因。

No one knows how the fire broke out. The police have started an _____ into the cause of it.

21. 下大雨時你必須小心開車以避免交通事故。

When there is a _____ rain, you have to drive very cautiously so as to avoid traffic accidents.

22. 這門數學課要求非常多，我每天至少花上二個小時寫作業。

This math class is very demanding; I have to _____ at least two hours every day doing the assignments.

23. 一般人用肉眼可以判斷雞蛋的品質，好的蛋必須外表上乾淨、無裂縫、且蛋殼平滑。

One can generally judge the quality of eggs with the naked eye. Good eggs must be_____ clean, free of cracks, and smooth-shelled.

24. 該位科學家修改他的演講內容讓小孩更容易了解全球暖化的威脅。

The scientist _____ his speech to make it easier for children to understand the threat of global warming.

25. 作為大眾傳播的媒體，網路已經大大勝過報紙。它已經成為人們國內和國際新聞的主要來源。

The Internet has surpassed newspapers as a medium of mass communication. It has become the main _____ for national and international news for people.

Appendix 9: Example of the Students' Query Logs Recorded by the AWETS Website

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Student: S12						Student: S21						Student: S15				
2	Query Log of TOTALrecall						Query Log of TOTALrecall						Query Log of TOTALrecall				
3	Strategy Coding	Query key word	Chosen Corpus				Strategy Coding	Chinese word	Chosen Corpus				Strategy Coding	Chinese word	Chosen Corpus		
4	3	region	Sinorama 1990~2000				1	告知	Sinorama 1990~2000				2	地區性	Sinorama 1990~2000		
5			Sinorama 1990~2000				3	notified	Sinorama 1990~2000					地區性	Sinorama 1990~2000		
6			Sinorama 1990~2000				1	南切	Sinorama 1990~2000					地區性	Sinorama 1990~2000		
7	3	show	Sinorama 1990~2000				3	closer	Sinorama 1990~2000				1	告知	Sinorama 1990~2000		
8		show	Sinorama 1990~2000				1	演出	Sinorama 1990~2000					告知	Sinorama 1990~2000		
9	1	監測	Sinorama 1990~2000				2	精選演出	Sinorama 1990~2000				1	演出	Sinorama 1990~2000		
10	1	議題	Sinorama 1990~2000				2	精彩演出	Sinorama 1990~2000				1	監測	Sinorama 1990~2000		
11	1	大力	Sinorama 1990~2000				1	監測	Sinorama 1990~2000					監測	Sinorama 1990~2000		
12	2	大力 推薦	Sinorama 1990~2000				1	議題	Sinorama 1990~2000				1	大力	Sinorama 1990~2000		
13	1	會看	Sinorama 1990~2000				3	subject	Sinorama 1990~2000				1	會看	Sinorama 1990~2000		
14		會看	Sinorama 1990~2000				1	大力	Sinorama 1990~2000				1	布料	Sinorama 1990~2000		
15	1	布料	Sinorama 1990~2000				2	大力推薦	Sinorama 1990~2000				1	招回	Sinorama 1990~2000		
16	1	召回	Sinorama 1990~2000				3	military	Sinorama 1990~2000				1	召回	Sinorama 1990~2000		
17	1	個人	Sinorama 1990~2000				1	大力	Sinorama 1990~2000				1	阻礙	Sinorama 1990~2000		
18	1	阻礙	Sinorama 1990~2000				3	maintaining	Sinorama 1990~2000				2	太陽系	Sinorama 1990~2000		
19		阻礙	Sinorama 1990~2000				1	大力	Sinorama 1990~2000				2	經濟領域	Sinorama 1990~2000		
20	2	太陽系	Sinorama 1990~2000				3	fabric	Sinorama 1990~2000				1	靈敏	Sinorama 1990~2000		
21	1	領域	Sinorama 1990~2000				1	布料	Sinorama 1990~2000				2	靈敏機器	Sinorama 1990~2000		
22		領域	Sinorama 1990~2000				1	召回	Sinorama 1990~2000				3	keen	Sinorama 1990~2000		
23	2	靈敏的	Sinorama 1990~2000				3	removal	Sinorama 1990~2000				2	靈敏的	Sinorama 1990~2000		
24	1	洩露	Sinorama 1990~2000				3	obstruct	Sinorama 1990~2000				1	洩露	Sinorama 1990~2000		
25	1	證據	Sinorama 1990~2000				1	阻礙	Sinorama 1990~2000				2	購買證明	Sinorama 1990~2000		
26	1	購買	Sinorama 1990~2000				2	太陽系	Sinorama 1990~2000				2	購買 證明	Sinorama 1990~2000		
27	1	流利	Sinorama 1990~2000				3	solar	Sinorama 1990~2000				1	購買	Sinorama 1990~2000		
28	1	會看	Sinorama 1990~2000				1	領域	Sinorama 1990~2000				1	流利	Sinorama 1990~2000		
29	2	外表上	Sinorama 1990~2000				1	靈敏	Sinorama 1990~2000				1	調會	Sinorama 1990~2000		
30	1	修改	Sinorama 1990~2000				1	洩漏	Sinorama 1990~2000				1	大雨	Sinorama 1990~2000		
31	1	來源	Sinorama 1990~2000				3	evidence	Sinorama 1990~2000				2	外表上	Sinorama 1990~2000		
32							1	購買	Sinorama 1990~2000				1	修改	Sinorama 1990~2000		
33							1	流利	Sinorama 1990~2000				1	告知	Sinorama 1990~2000		
34							3	investigate	Sinorama 1990~2000				2	大力 推薦	Sinorama 1990~2000		
35							3	examine	Sinorama 1990~2000				1	大力	Sinorama 1990~2000		
36							2	下大雨	Sinorama 1990~2000					大力	Sinorama 1990~2000		
37							2	外表上	Sinorama 1990~2000				1	來源	Sinorama 1990~2000		
38							1	修改	Sinorama 1990~2000								
39							1	來源	Sinorama 1990~2000								
40																	
41	Query Log of TANGO						Query Log of TANGO						Query Log of TANGO				
42		English word	Chinese word	Chosen Corpus	POS	Type		English word	Chinese word	Chosen Corpus	POS	Type	0	TANGO DATA: N/A			
43	4	weather		Sinorama	Noun	VN	4	monitor		Sinorama	Verb	VN					
44	4	weather		Sinorama	Noun	VNP											
45	4	weather		Sinorama	Noun	VNP											
46	4	weather		Sinorama	Noun	VPN											
47																	

Appendix 10: Syllabus for Corpus-assisted Translation

Syllabus for Corpus-assisted Translation

<table>
<tr><td colspan="2" rowspan="3">Course Name: Corpus-assisted Translation (Chinese to English)</td><td>Instructor</td><td>Shih-Ping Cheng (Pearl)</td></tr>
<tr><td>Department and Class</td><td>Foreign Language 3A</td></tr>
<tr><td>Credit</td><td>2</td></tr>
<tr><td>Required or Elective course:</td><td>Elective course</td><td>Semester</td><td>1</td></tr>
<tr><td colspan="4">Course Objectives:
The aims of the Corpus-assisted Translation Course are as the following:
1. To introduce Chinese-English translation skills.
2. To equip students with knowledge and methods of solving translation problems.
3. To introduce different types of corpora and explain how corpora is applied in Translation practice.
4. To demonstrate how to use corpora tools to access English collocations and translation and let the students practice using corpora in class.
5. To teach the students how to use corpora tools to assist their Chinese-English translation and how to find appropriate collocations and translation.
6. To help the students improve their quality of Chinese-English translation in terms of the styles, collocations, lexical choices, grammar and sentence structures of the translated English texts.</td></tr>
<tr><td colspan="4">Requirements:
1. Please pay close attention to the announcements on the site of Corpus-assisted Translation on the Moodle system and check your student email every day.
2. Participation in the discussion and making contribution to the class are highly required and marked.
3. Students should turn in a hard copy and an e-copy of every assignment. The e-copy should be uploaded to the Moodle system two hours prior to class. The uploading function for the assignment will close at 8:30am on every Thursday. Late homework will not be accepted, and marked zero. The font should be "Times New Roman", size 12 with double space. The student should also bring a hard copy of the assignment to class for discussion, and turn it in after the discussion. Points will be deducted if forgotten to bring the hard copy to class. Please find the template word file for your assignments on the Moodle system.
4. Attendance and punctuality are strictly required in this course.
5. Please feel free to express your thoughts and feedbacks to the classes on the discussion forum of Corpus-assisted Translation on the Moodle system.</td></tr>
<tr><td colspan="4">Grading Criteria:
Mid-term Exam — 20%
Final Exam — 20%
Quizzes — 20%
Attendance and performance — 10 %
Assignments — 30%</td></tr>
</table>

Textbook:
Lai, T. L. (2005). *The Art of Translation*. Taipei, Taiwan: Crane Publishing.

References & Supplementary materials:
Olohan, Maeve (2004) *Introducing Corpora in Translation Studies*. Oxfordshire: Routledge.

Course Syllabus:

Week	Date	Contents	Memo
1	Sep 15	Introduction to the course and rules, introduction to corpus and collocation, test on Translation competency	Explanations on research and ethical issues
2	Sep 22	Sentences without subjects	HW# 1
3	Sep 29	Multiple verbs	HW# 1 Discussion
4	Oct 6	Chinese Passive voice	HW# 2
5	Oct 13	Compound sentences 1	HW# 2 Discussion
6	Oct 20	Compound sentences 2	HW# 3
7	Oct 27	Prepositions	HW# 3 Discussion
8	Nov 3	Common translation mistakes	Student Group Interview
9	Nov 10	Midterm Exam	Midterm Questionnaire
10	Nov 17	Department field trip: visit a translation company	No Class
11	Nov 24	Introduce BNC & demonstrate using Tango	HW# 4
12	Dec 1	University athletic meeting	No Class
13	Dec 8	Demonstrate more enquiry skills in Tango	HW# 4 Discussion
14	Dec 15	Demonstrate making enquiries in TOTALrecall	HW# 5
15	Dec 22	Demonstrate how to make use of Tango and TOTALrecall to assist translation	HW# 5 Discussion
16	Dec 29	Training of enquiry skills and strategies	HW# 6
17	Jan 5	Training of strategies for solving translation problems	Group Interview
18	Jan 12	Final Exam	Final Questionnaire

Appendix 11: Difficulty Index of the Test Questions

Difficulty index of the test questions based on the pre-test results:

Pre-test Ranking	Question #	Pre-test Mean for each question	Pre-test Sum for each question	Difficulty Index
1	10	1.1	24.0	25
2	5	1.4	25.0	24
3	23	1.5	37.0	23
4	20	1.7	33.0	22
5	1	1.9	40.5	21
6	16	1.9	37.0	20
7	8	2.2	56.0	19
8	15	2.3	38.5	18
9	9	2.3	37.0	17
10	12	2.4	39.0	16
11	17	2.6	62.0	15
12	11	2.6	65.0	14
13	24	2.7	59.5	13
14	6	2.8	79.0	12
15	3	2.9	43.0	11
16	19	2.9	76.0	10
17	7	3.0	62.5	9
18	14	3.0	84.5	8
19	2	3.0	78.5	7
20	13	3.1	78.0	6
21	18	3.2	76.5	5
22	25	3.2	80.0	4
23	21	3.3	97.0	3
24	4	3.4	96.5	2
25	22	3.7	107.0	1

Note: The bigger number the difficulty index is, the more difficult the question is to the students. Sum is based on the adding up of the scores gained by all the twenty-nine students for each question. The full score for each question is 4 points.

Difficulty index of the test questions based on the post-test results

Post-test Ranking	Question #	Post-test Mean for each question	Post-test Sum for each question	Difficulty Index
1	23	1.7	49.5	25
2	8	1.7	50.0	24
3	3	2.4	69.0	23
4	20	2.5	71.5	22
5	10	2.6	72.0	21
6	7	2.6	70.0	20
7	5	2.7	79.5	19
8	11	2.8	81.0	18
9	12	3.0	86.0	17
10	6	3.1	90.0	16
11	16	3.3	91.0	15
12	24	3.3	92.0	14
13	4	3.4	98.0	13
14	1	3.4	99.5	12
15	18	3.4	99.5	11
16	14	3.4	100.0	10
17	9	3.5	102.0	9
18	2	3.7	106.0	8
19	17	3.7	106.5	7
20	15	3.7	103.0	6
21	19	3.7	108.0	5
22	22	3.8	109.0	4
23	25	3.8	106.5	3
24	21	3.8	110.5	2
25	13	3.9	108.0	1

Appendix 12: Students' Score Attainment for Each of the Twenty-five Test Questions

Mean and score sum of each of the twenty-five questions in the pre-test.

Pre-test Descriptive Statistics

Question Number		1	2	3	4	5	6	7	8	9	10	11	12	13
N	Valid	21	26	15	28	18	28	21	25	16	22	25	16	25
	Missing	8	3	14	1	11	1	8	4	13	7	4	13	4
Mean		1.9	3.0	2.9	3.4	1.4	2.8	3.0	2.2	2.3	1.1	2.6	2.4	3.1
Std. Deviation		1.2	1.7	1.5	0.6	1.7	1.2	1.6	2.0	1.8	1.8	1.4	1.8	1.1
Sum		40.5	78.5	43.0	96.5	25.0	79.0	62.5	56.0	37.0	24.0	65.0	39.0	78.0

Pre-test Descriptive Statistics (Continued)

Question Number		14	15	16	17	18	19	20	21	22	23	24	25
N	Valid	28	17	19	24	24	26	19	29	29	24	22	25
	Missing	1	12	10	5	5	3	10	0	0	5	7	4
Mean		3.0	2.3	1.9	2.6	3.2	2.9	1.7	3.3	3.7	1.5	2.7	3.2
Std. Deviation		1.5	1.9	1.9	1.6	1.3	1.5	1.9	1.4	0.8	1.4	1.1	1.1
Sum		84.5	38.5	37.0	62.0	76.5	76.0	33.0	97.0	107.0	37.0	59.5	80.0

Note: N= 29. The Sum refers to an add up of all the 29 students' grade for each question.

Mean and score sum of each of the twenty-five questions in the pre-test.

Post-test Descriptive Statistics

Question Number		1	2	3	4	5	6	7	8	9	10	11	12	13
N	Valid	29	29	29	29	29	29	27	29	29	28	29	29	28
	Missing	0	0	0	0	0	0	2	0	0	1	0	0	1
Mean		3.4	3.7	2.4	3.4	2.7	3.1	2.6	1.7	3.5	2.6	2.8	3.0	3.9
Std. Deviation		0.7	1.0	1.7	0.9	1.6	0.7	1.8	1.8	0.9	1.7	1.2	1.4	0.4
Sum		99.5	106.0	69.0	98.0	79.5	90.0	70.0	50.0	102.0	72.0	81.0	86.0	108.0

Post-test Descriptive Statistics (Continued)

Question Number		14	15	16	17	18	19	20	21	22	23	24	25
N	Valid	29	28	28	29	29	29	29	29	29	29	28	28
	Missing	0	1	1	0	0	0	0	0	0	0	1	1
Mean		3.4	3.7	3.3	3.7	3.4	3.7	2.5	3.8	3.8	1.7	3.3	3.8
Std. Deviation		1.0	0.9	1.3	0.8	1.0	0.5	1.7	0.8	0.8	1.6	0.8	0.6
Sum		100.0	103.0	91.0	106.5	99.5	108.0	71.5	110.5	109.0	49.5	92.0	106.5

Note: N= 29. The Sum refers to an add up of all the 29 students' grade for each question.

Mean and sum comparison of the pre-test and post-test

Mean & Sum Comparison of Pre-test & Post-test

Question Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Pre-test Mean	1.9	3.0	2.9	3.4	1.4	2.8	3.0	2.2	2.3	1.1	2.6	2.4	3.1	3.0	2.3	1.9	2.6	3.2
Post-test Mean	3.4	3.7	2.4	3.4	2.7	3.1	2.6	1.7	3.5	2.6	2.8	3.0	3.9	3.4	3.7	3.3	3.7	3.4
Pre-test Sum	41	79	43	97	25	79	63	56	37	24	65	39	78	85	39	37	62	77
Post-test Sum	100	106	69	98	80	90	70	50	102	72	81	86	108	100	103	91	107	100

Mean & Sum Comparison of Pre-test & Post-test (Continued)

Question Number	19	20	21	22	23	24	25	Average	Full Score	Total Score	Full Score	Average Score	Improv. Rate %
Pre-test Mean	2.9	1.7	3.3	3.7	1.5	2.7	3.2	2.5	4.0				
Post-test Mean	3.7	2.5	3.8	3.8	1.7	3.3	3.8	3.1	4.0				
Pre-test Sum	76	33	97	107	37	60	80	57	116	1023	2900	52.1%	
Post-test Sum	108	72	111	109	50	92	107	90	116	1611	2900	77.9%	49.3%

Note: N= 29. The Sum refers to an add up of all the 29 students' grade for each question.

Appendix 13: Scoring Rubric for the Pre-test and Post-test Answers

The scoring of answers for question 10 in the post-test

Coded response/ Score	Answers	Response Code
0.0	**back, call, recollect, recycle, return**	wrong choice
0.5	removeing	acceptable choice, but wrong form and spelling
1.0	removing	acceptable choice, but wrong form
1.5	remov	acceptable choice, but wrong spelling
2.0	**retrieve, remove**	acceptable choice (not the best equivalence)
2.5	recaled	correct choice, but wrong form and spelling
3.0	recalled	correct choice, but wrong form
3.5	recalle	correct choice, but wrong spelling
4.0	**recall**	correct choice

Question 10: Because of the engine problem in the new vans, the auto company decided to __recall__ them from the market.

Chinese translation:由於新款休旅車的引擎問題，這家汽車公司決定要將它們從市場上召回。

The coded response and scoring of answers for question 10 are explained as the following, and illustrated in Appendix 13. For this question, the correct answer for this translation cloze test is "recall" which is correct in terms of the collocation usage and grammatical rules, and students receive a full score of 4.0 points if they write the answer completely correct. However, there are circumstances where the students write their answers partially correctly, and still get a partial score depending on the kind of mistake they make. For example, if the students wrote the correct word choice but misspelled it, they received 3.5 points for the score. If they wrote the correct word choice, but with the wrong word form, i.e. verb tense in this case, then

they receive 3.0 points. If the students made both of the mistakes by writing the wrong form and misspelling the correct word choice, then they only get 2.5 points. There are also cases where the student wrote an acceptable choice of word, but not the best equivalence to the meaning of the answer, so then they receive 2.0 points. The same rules of mistake deduction of grades apply as with correct word choice, and the students receive 1.5, 1.0, 0.5 points as illustrated with examples of answers in Appendix 13. Besides, there is also a list of words of wrong choice. For question 10, the list includes "back, call, recollect, recycle, return". If the student wrote any of these words, they receive zero points because the word is not correct in terms of word usage or collocation rules in the context.

Appendix 14: Scoring Rubric for All the Response Answers Given by the Students in the Pre-test and Post-test

Scoring Rubric for the Translation Cloze Test

1. There are 25 questions testing the students' competency in using collocation and vocabulary correctly when translating from Chinese to English. The questions were bilingual with English statements and Chinese translation both listed on the test paper. However, one word is missing (shown as a blank) in each English statement that the students have to figure out the word that best suits the statement judging from the Chinese translation of the English statement and the neighboring words of the blank space—testing on collocation or vocabulary use.
2. In row B which says "QUESTION", listed the 25 questions with the answers underlined and marked red letters. The students' answers are listed right to the questions (in rows C, E, G, I, K, M, O, Q). The degree of equivalence of each word to the answers in row B determines the scores that the students will receive. The students' answers also have to be correct in collocation usage or equivalent in word meaning to the answers in row B. The scores range from 0 to 4. (Please see the first table on the following page for an example of scoring the answers.)
3. Scoring Criterion:
   4 points: correct collocation/vocabulary
   3 points: correct collocation/vocabulary, but incorrect form
   2 points: acceptable collocation/vocabulary yet not the best equivalence
   1 point: acceptable collocation/vocabulary & incorrect form
   0 point: wrong collocation/vocabulary
4. The corresponding scores to each of the answers are listed in the rows that says "Score (S)"

Scoring rubric for all the response answers

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	Scores	**4 points:** Correct collocation/ vocabulary; **3 points:** Correct collocation/ vocabulary, but incorrect form	**2 points:** Acceptable collocation/vocabulary yet **not the best equivalence**; **1 point:** Acceptable collocation/ vocabulary & **incorrect form**								**0 point: Wrong** collocation/ vocabulary/ misspelling						**S: Score**	
2	No.	QUESTION	Answer 1	S	Answer 2	S	Answer 3	S	Answer 4	S	Answer 5	S	Answer 6	S	Answer 7	S	Answer 8	S
3	e.g.	If you ___violate___ a traffic law, such as drinking and driving, you may not drive for some time.	break	4	disobey	4	breaking	3	ignore	2	ignorance	1	dismiss	0	follow	0		
4	1	Chinese is a language with many ___regional___ differences. People living in different areas often speak different dialects.	local	4	localized	4	provincial	2	area	2	distriction	0	territory	1				
5	2	A menu serves to ___inform___ customers about the varieties and prices of the dishes offered by the restaurant.	tell	4	show	0	announce	0	notice	0	advice	3	notify	4	offer	0		
6	3	The baby polar bear is being ___intensively___ studied by the scientists. Every move he makes is carefully observed and documented.	closely	4	frequently	2	extensively	2	tightly	2	dedicatedly	0	intimately	0	intently	4	detailed	0
7	4	After his superb ___performance___, the musician received a big round of applause from the appreciative audience.	performing	3	show	2	playing	4	display	0								
8	5	The water company inspects the pipelines and ___monitors___ the water supply regularly to ensure the safety of our drinking water.	checks	4	detects	0	looks	0	measures	0	supervises	0	tests	4	watches	2		
9	6	This year's East Asia Summit meetings will focus on critical ___issues___ such as energy conservation, food shortages, and global warming.	subjects	4	discussions	0	events	0	problems	4	opinions	0	strategies	0	themes	4	topics	4
10	7	Having fully recognized Mei-ling's academic ability, Mr. Lin ___strongly___ recommended her for admission to the university.	completely	0	extremely	0	especially	2	greatly	2	highly	4	intensely	0	largely	0	powerfully	0
11	8	The weatherman has warned about drastic temperature change in the next few days, and suggested that we ___check___ the weather on a daily basis and dress accordingly.	find out	4	check out	4	depend	0	examine	2	inspect	0	see	0	watch	4	look up	0

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	Scores	**4 points:** Correct collocation/ vocabulary; **3 points:** Correct collocation/ vocabulary, but incorrect form	**2 points:** Acceptable collocation/vocabulary yet **not the best equivalence**; **1 point:** Acceptable collocation/ vocabulary & **incorrect form**								**0 point: Wrong** collocation/ vocabulary/ misspelling						**S: Score**	
2	No.	QUESTION	Answer 1	S	Answer 2	S	Answer 3	S	Answer 4	S	Answer 5	S	Answer 6	S	Answer 7	S	Answer 8	S
12	9	Many people think cotton is the most comfortable ___fabric___ to wear in hot weather.	cloth	4	clothes	2	clothing	4	material	4	textile	2	texture	0	things	0		
13	10	Because of the engine problem in the new vans, the auto company decided to ___recall___ them from the market.	retrieve	2	back	0	call	0	recollect	0	recycle	0	remove	2	return	0		
14	11	In team sports, how all members work as a group is more important than how they perform ___individually___.	personally	4	personality	0	personnel	0	themselves	4	by personal	0	in individual	0	they own self	0		
15	12	Despite her physical disability, the young blind pianist managed to overcome all ___obstacles___ to win the first prize in the international contest.	barriers	4	challenges	4	blocks	2	difficulties	4	hamper	0	hardship	3	hinderance	3	obstruction	1
16	13	Each of the planets in the ___solar___ system circles around the sun in its own orbit, and this prevents them from colliding with each other.	sun	3	universal	0												
17	14	Professor Wang is well known for his contributions to the ___field___ of economics. He has been recruited to help the government with its financial reform programs.	territory	2	realm	4	area	4	aspect	0	domain	4	part	0	profession	2	region	2
18	15	Most earthquakes are too small to be noticed; they can only be detected by ___sensitive___ instruments.	acute	4	delicate	0	high-tech	0	intensive	2	keen	2	smart	0	sense	1	sophisticated	4
19	16	With Wikileaks releasing secrets about governments around the world, many countries are worried that their national security information might be ___disclosed___.	revealed	4	discovered	4	divulged	4	escaped	0	known	2	leaked	2	leaked out	1	let out	0

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	**Scores**	**4 points:** Correct collocation/ vocabulary; **3 points:** Correct collocation/ vocabulary, but **incorrect form**	**2 points:** Acceptable collocation/vocabulary yet **not the best equivalence**; **1 point:** Acceptable collocation/ vocabulary & **incorrect form**								**0 point: Wrong** collocation/ vocabulary/ misspelling						**S: Score**	
2	No.	QUESTION	Answer 1	S	Answer 2	S	Answer 3	S	Answer 4	S	Answer 5	S	Answer 6	S	Answer 7	S	Answer 8	S
20	17	I'm afraid we can't take your word, for the ___evidence___ we've collected so far is not consistent with what you said.	proof	2	facts	2	information	4										
21	18	You'll need the store receipt to show proof of ___purchase___ if you want to return any items you bought.	purchasing	3	buy	3	buying	4	consuming	0	ticket	0						
22	19	Spending most of his childhood in Spain, John, a native speaker of English, is also ___fluent___ in Spanish.	fluently	3	good	2	well	0										
23	20	No one knows how the fire broke out. The police have started an ___investigation___ into the cause of it.	survey	0	examination	4	research	0	search	0								
24	21	When there is a ___heavy___ rain, you have to drive very cautiously so as to avoid traffic accidents.	big	0	strong	0	hard	0	torrential	4	downpour	1						
25	22	This math class is very demanding; I have to ___spend___ at least two hours every day doing the assignments.	take	4	use	2	cost	0										
26	23	One can generally judge the quality of eggs with the naked eye. Good eggs must be ___externally___ clean, free of cracks, and smooth-shelled.	superficially	0	apparently	4	facially	0	obviously	4	physically	2	visually	4	appeared	3	appearance	3
27	24	The scientist ___modified___ his speech to make it easier for children to understand the threat of global warming.	revised	4	amended	4	changed	4	altered	4	corrected	4	edited	4	fixed	0	redraft	3
28	25	The Internet has surpassed newspapers as a medium of mass communication. It has become the main ___source___ for national and international news for people.	origin	2	resource	2												

Appendix 15: Frequency Comparison of the Midterm and Final Questionnaires

Frequency Comparison of the Midterm and Final Questionnaires

Question		Midterm %	Final %
When undertaking Chinese-English translation tasks ...			
1. I often do not know how to solve translation problems.	I strongly disagree	0	0
	I disagree	7.4	14.8
	I have no comment	18.5	18.5
	I agree	70.4	55.6
	I strongly agree	3.7	11.1
2. I often do not know how to translate terminologies.	I strongly disagree	3.7	0
	I disagree	14.8	3.7
	I have no comment	3.7	7.4
	I agree	59.3	74.1
	I strongly agree	18.5	14.8
3. I often do not know how to distinguish between collocation usages.	I strongly disagree	0	0
	I disagree	7.4	7.4
	I have no comment	18.5	22.2
	I agree	66.7	51.9
	I strongly agree	7.4	18.5
4. I often do not know how to choose the most appropriate word/ phrase to express the meaning of the source language.	I strongly disagree	0	0
	I disagree	3.7	18.5
	I have no comment	0	7.4
	I agree	77.8	55.6
	I strongly agree	18.5	18.5
5. I am very confident in the accuracy of my Chinese-English translation.	I strongly disagree	11.1	11.1
	I disagree	66.7	40.7
	I have no comment	14.8	37.0
	I agree	3.7	11.1
	I strongly agree	3.7	0
6. I am very confident in the accuracy of the grammar in my translated English text.	I strongly disagree	14.8	11.1
	I disagree	63.0	48.1
	I have no comment	18.5	37.0
	I agree	0	3.7
	I strongly agree	3.7	0
7. I am very confident in the accuracy of the terminology in my translated English text.	I strongly disagree	22.2	3.7
	I disagree	55.6	77.8
	I have no comment	18.5	14.8
	I agree	3.7	3.7
	I strongly agree	0	0
8. I am very confident in the accuracy of the collocation usage in my translated English text.	I strongly disagree	14.8	3.7
	I disagree	59.3	66.7
	I have no comment	22.2	18.5
	I agree	3.7	11.1
	I strongly agree	0	0
9. I would acquire knowledge related to Translation spontaneously in my free time.	I strongly disagree	11.1	0
	I disagree	14.8	18.5
	I have no comment	33.3	48.1
	I agree	40.7	33.3
	I strongly agree	0	0

(Continued)

Frequency Comparison of the Midterm and Final Questionnaires *(Continued)*

Question		Midterm %	Final %
When undertaking Chinese-English translation tasks (in-class practice or assignments) ...			
10. I am capable of acquiring the information that I need by making enquiries in Corpora.	I strongly disagree		0
	I disagree	N/A	0
	I have no comment		18.5
	I agree		74.1
	I strongly agree		7.4
11. I often use Corpora to check the words/ phrases that I cannot translate.	I strongly disagree		0
	I disagree	N/A	0
	I have no comment		33.3
	I agree		63.0
	I strongly agree		3.7
12. Checking terminologies in Corpora can help me to use terminologies accurately in the translated text.	I strongly disagree		3.7
	I disagree	N/A	14.8
	I have no comment		14.8
	I agree		51.9
	I strongly agree		14.8
13. Checking grammar of words/ phrases in Corpora can help me to use grammar accurately in the translated text.	I strongly disagree		0
	I disagree	N/A	3.7
	I have no comment		22.2
	I agree		66.7
	I strongly agree		7.4
14. Checking collocation of words/ phrases in Corpora can help me to use collocation accurately in the translated text.	I strongly disagree		0
	I disagree	N/A	0
	I have no comment		3.7
	I agree		81.5
	I strongly agree		14.8
15. After checking collocation usage in Corpora, now I know how to find accurate collocation usage.	I strongly disagree		0
	I disagree	N/A	0
	I have no comment		14.8
	I agree		70.4
	I strongly agree		14.8
16. After checking collocation usage in Corpora, I think my capability of using collocation has been greatly improved.	I strongly disagree		0
	I disagree	N/A	0
	I have no comment		25.9
	I agree		59.3
	I strongly agree		14.8
17. Making enquiries in Corpora does not do any help in solving translation problems that I encounter when undertaking translation tasks.	I strongly disagree		18.5
	I disagree	N/A	66.7
	I have no comment		7.4
	I agree		3.7
	I strongly agree		3.7

(Continued)

Frequency Comparison of the Midterm and Final Questionnaires *(Continued)*

Question		Midterm %	Final %
18. I often cannot find the reference answers that I need when making enquiries in Corpora.	I strongly disagree	N/A	0
	I disagree		48.1
	I have no comment		37.0
	I agree		14.8
	I strongly agree		0
19. Enquiring Corpora with translation problems can motivate my interest in learning translation greatly.	I strongly disagree	N/A	0
	I disagree		0
	I have no comment		37.0
	I agree		48.1
	I strongly agree		14.8
20. Enquiring Corpora with translation problems makes me enjoy the translation practice in class even more.	I strongly disagree	N/A	0
	I disagree		0
	I have no comment		29.6
	I agree		55.6
	I strongly agree		14.8
21. Enquiring Corpora with translation problems can increase my confidence in the accuracy of my translated text greatly.	I strongly disagree	N/A	0
	I disagree		0
	I have no comment		11.1
	I agree		74.1
	I strongly agree		14.8
22. I will continue using Corpora in the future to help me solve translation problems.	I strongly disagree	N/A	0
	I disagree		0
	I have no comment		11.1
	I agree		66.7
	I strongly agree		22.2

(Continued)

Appendix 16: In-class Translation Exercises (Translating from Chinese into English)

Week 13: In-class Translation Exercises

- 提到鼎泰豐，總是先讓人聯想到，個個小巧精緻如玲瓏般的小籠包。如是想，也無可厚非。

  Whenever the name DinTaiFung is mentioned, the first thing that people think of is small, delicate steamed dumplings. It's only natural to associate the two, after all.

- 然而，在這樣盛名之下，鼎泰豐這個名字是從何而來？又是如何誕生呢？

  But where did the famous DinTaiFung name come from? What were its origins?

- 鼎泰豐的傳奇是這樣開始的。

  This is the story of how the DinTaiFung legend came to be.

Week 14: In-class Translation Exercises

- 就在楊秉彝夫婦以為這是他們事業的盡頭時，卻萬萬沒想到這次的事件成為『鼎泰豐』轉型的契機。

  Just as Yang and his wife thought that this was the end of their business, opportunity knocked.

- 楊秉彝夫婦接受『復興園』唐老闆的建議，把原本賣油的店面改成一半賣油，一半賣小籠包。

  Taking the advice of Mr. Tang, owner of the "Fuhsing Garden" restaurant, Yang and his wife turned one half of their shop over to making and selling steamed dumplings.

- 而『鼎泰豐』的小籠包在毫無宣傳之下，憑著真材實料，客人吃過皆讚不絕口，吃過的客人一個帶一個地上門，生意極佳。

  The quality of steamed dumplings at "DinTaiFung" soon captured the stomachs of customers. Though the store never advertised, word-of-mouth brought in more customers and the business took off.

- 就這樣，『鼎泰豐』結束掉油行的營運，正式經營起小籠包與麵點的生意，而『鼎泰豐』成為國際品牌的傳奇故事也就此展開。

  "DinTaiFung" soon stopped selling oil entirely and became a full-fledged restaurant. This was also where the legend of how "DinTaiFung" became an international brand began.

Week 15: In-class Translation Exercises

臺灣客家湯圓節 Hakka Glutinous Rice Ball Festival

- 行政院客委會為行銷客家美食文化、活絡客家米食產業，希望藉由「客家湯圓料理比賽」推廣客家湯圓料理並有效提升客家美食的能見度，特別舉辦「台灣客家湯圓節」活動。

- The Council for Hakka Affairs, Executive Yuan is hoping to promote Hakka Glutinous Rice Ball Cuisines and increase the visibility of Hakka Cuisines effectively by hosting the Hakka Glutinous Rice Ball Cooking Competition. The purpose of which is to promote the Hakka Delicacy Culture and stimulate the industry of Hakka Rice Dishes. Therefore, the Taiwan Hakka Glutinous Rice Balls Festival is especially hosted.

- Source: http://www.justaiwan.com/travel_info/travel_info_main.php?id=1784
- Accessed on 19/12/2011

Week 16: In-class Translation Exercises

1. 身為地球村的成員，我們不應把自己侷限在這個小島上。

   As members/citizens of the global village, we should not limit ourselves to this small island.

2. 我們不但應該參與國際性的活動，並且應該展現我們自己的文化特色。

   We should not only participate in international affairs but also display the distinctive features of our culture. / We should display the distinctive features of our culture as well as participate in international affairs.

3. 人類對外太空所知非常有限，但長久以來我們對它卻很感興趣。

   －Man's/Mankind's/Humans'/Human beings' knowledge of the outer space is very limited, but we have been very interested in/have taken much interest in it for a long time.

   －Although man's/mankind's/humans'/human beings' knowledge of the outer space is very limited, we have taken much interest in it for a long time.

   －Man's/Mankind's/Humans'/Human beings' knowledge of the outer space is very limited; however, we have taken much interest in it for a long time.

4. 太空科技的快速發展，使我們得以探索它的奧秘。

   －The rapid development of space technology enables us to explore its mystery.

   －Due to the rapid development of space technology, we are able to explore its mystery.

   －As space technology develops rapidly, we are able to explore its mystery.

5. 為提供一個無煙的用餐環境，許多餐廳不允許室內抽煙。

   －To provide a non-smoking dinning environment, a lot of restaurants don't allow smoking indoors.

   －To provide a non-smoking dinning environment, lots of restaurants don't allow people to smoke indoors.

6. 雖然遭到許多癮君子的反對，這對不抽煙的人的確是一大福音。

－Although (it is) opposed to by many heavy/chain smokers, it is certainly/definitely/indeed good news to non-smokers.

－Despite the fact that it is opposed to by many heavy/chain smokers, it is certainly/definitely/indeed good news to non-smokers.

Source: Translation questions in the College Entrance Examination of Taiwan in 2005 and 2006.

Week 17: In-class Translation Exercises

1. 除了用功讀書獲取知識外，學生也應該培養獨立思考的能力。

   Besides studying hard and acquiring knowledge, students should also develop the ability to think independently.

2. 大部分學生不習慣自己解決問題，他們總是期待老師提供標準答案。

   Most students are not used to solve problems by themselves; however, they always expect correct answers to be provided by the teacher.

3. 大眾運輸的快速發展已逐漸縮短了都市和鄉村的距離。

   The rapid development of mass transportation has gradually shortened the distance between the city and the countryside.

4. 有了高速鐵路，我們可以在半天內往返台灣南北兩地。

   With High Speed Rail, we can travel from Northern Taiwan to Southern Taiwan and back in half a day.

5. 全球糧食危機已經在世界許多地區造成嚴重的社會問題。

   The global food crisis has created/caused serious/critical social problems in many regions around the world.

6. 專家警告我們不應該再將食物價格低廉視為理所當然。

   Experts warn that we should no longer take low-priced food for granted.

Source: Translation questions in the College Entrance Examination of Taiwan in 2007, 2008 and 2009.

Appendix 17: Translation Homework Assignments (Translating from Chinese into English)

Assignment 1: Wikipedia (維基百科)

你會不會想知道去年是哪隻狗贏得了全世界最醜的狗的榮銜，還是英文中最長的字是哪個字呢?想找出答案的話，就上「維基百科」，不只能找到上述問題的解答，還可以找到更多問題的答案喔！

「維基百科」是許許多多多 wiki 網站之一，這些網站容許任何人上去撰寫、添加或改變站上的內容。只不過，wiki 是可靠的資訊來源嗎？這個問題至今還沒有定論，因為並不是所有人都喜歡這些網站。

事實上，「麻省理工學院」所進行的研究發現，文章內出現的淫穢猥褻文字，通常在短短一點七分鐘內就會被刪除，而錯誤資訊通常也會很快被刪掉。

Have you ever wondered which dog won the World's Ugliest Dog Contest last year or what the longest word in the English language is? Look no further than Wikipedia to find answers to these questions and many more.

Wikipedia is one of a number of sites called wikis, websites that allow anyone to write, add to or change a site's text. But, are wikis reliable sources of information? The jury is still out on that as not everyone is enamored of the sites.

Actually a study conducted by MIT found that obscenities in articles are usually removed within 1.7 minutes. False information is usually quickly deleted too.

Assignment 2: Budapest (布達佩斯)

大部分遊客造訪匈牙利的第一站，都是首府布達佩斯，市區內優雅又宛如童話般的建築林立。包準你很輕易就能找到矗立在多瑙河畔的「國會大廈」，這是布達佩斯的地標之一。先欣賞外觀，再飽覽大廈彫梁畫棟的內部景致。

之後，再登上「城堡丘」參觀皇宮，亦即匈牙利前皇室成員的故居。如今，這座占地廣大的宮殿裡還容納了引人入勝的博物館和藝廊。接著，攀登上「抹大拉的馬利亞塔」，俯瞰全布達佩斯最美侖美奐的景致。

最後，可別錯過「塞切尼溫泉」，這兒共有冷熱溫度不一的十五個泉池，可以坐在池子裡，或享受一下按摩的樂趣。

Most visits to Hungary begin in Budapest, the capital, with its elegant, fairy-tale-like building. You can't miss the Parliament Building rising up beside the Danube, one of the city's symbols. Admire the outside and then tour the richly decorated inside.

Afterward, walk up Castle Hill and see the Royal Palace, former home of the Hungarian royal family. Today, the huge palace houses interesting museums and galleries. Next, climb the Mary Magdalene Tower for one of the best views of Budapest.

And finally, don't miss the Széchenyi Baths with their 15 pools of hot and cold water of varying temperatures. Sit in a pool or enjoy a massage.

文章出處：空中英語教室雜誌 2009年4月出刊, 第12&64頁

Source: Studio Classroom Magazine, April, 2009 Issue, pp. 12 & 64.

Assignment 3: Steve Jobs (賈伯斯)

1. 賈伯斯給我們的 3 件禮物：愛、失敗、死亡。
2. 賈伯斯，一個改變世界的人，他精彩而短暫的生命，帶給我們什麼樣的啟示？

賈伯斯名言：

3. 不能只是客戶想要什麼就給他什麼，等你生產好了，他們又想要其他東西了。
4. 我很確信，我能堅持下去的唯一理由就是我愛自己所做的事。你必須找到你的所愛，對工作、對愛情都一樣。
5. 你們的時間有限，不要浪費時間活在別人的陰影裡，最重要的是，要有勇氣跟隨自己的內心與直覺。

Source:

Business Weekly Magazine, Issue 1247, pp. 108-126, published on 17 November, 2011. http://www.businessweekly.com.tw/

以上內容摘錄自商業周刊第 1247 期，第 108-126 頁，出刊日 2011 年 10 月 17 日。

Assignment 4: Din Tai Fung Restaurant (鼎泰豐)

1. 鼎泰豐是由現在的經營者楊紀華先生的父親楊秉彝所創立的。
2. 說到「鼎泰豐」，最有名的就是小籠包，有名到不論哪個中外明星來到台灣，都說要嚐一嚐「小籠包」的滋味，就可見一斑。
3. 鼎泰豐幾乎變成台灣美食的代表了。

Source of text:

The texts were extracted and rewritten based on the content of the following websites.

以上內容摘錄改寫自以下網站。

http://zh.wikipedia.org/wiki/%E9%BC%8E%E6%B3%B0%E8%B1%90

http://changfong.pixnet.net/blog/post/13951606-%5B%E9%A3%9F%E8%A8%98%5D%E9%BC%8E%E9%BC%8E%E5%A4%A7%E5%90%8D%E7%9A%84%E5%B0%8F%E7%B1%A0%E5%8C%85%E2%80%A7%E9%BC%8E%E6%B3%B0%E8%B1%90

Assignment 5: MAMMA MIA! (媽媽咪呀！)

在1999年3月23日，音樂劇《媽媽咪呀！》首度在倫敦開演。自從那時起，它始終很受歡迎。觀眾們為之瘋狂。他們實際上還離開了座位，在走道上唱歌和跳舞。

On March 23, 1999, the musical MAMMA MIA! made its first public appearance in London. It was given the kind of welcome it has been getting ever since. The audience went wild. They were literally out of their seats and singing and dancing in the aisles.

《媽媽咪呀！》已然成為一個全球性的娛樂現象。全世界有超過三千萬的觀眾愛上它的角色、故事和音樂。這齣音樂劇已經用超過九種語言來演出，更有比任何其他音樂劇還多的上演次數。

MAMMA MIA! has become a global entertainment phenomenon. More than 30 million people all over the world have fallen in love with the characters, the story and the music. The musical has been performed in more than nine languages, with more productions than any other musical.

它的全球熱潮主要可歸功於其主題音樂，以清新有活力的方式呈現 ABBA 的永恆歌曲時，其也保存了流行樂與音樂劇的精華。它吸引了很多人，以致於也推出了電影版本。不意外的是，它一樣受到歡迎。

Its worldwide popularity is mainly due to its theme music, which showcases ABBA's timeless songs in a fresh and vital way that retains the essence of both pop music and good musical theater. It has appealed to so many people that a film version was also made. To no one's surprise, it has enjoyed similar popularity.

Source: Test questions in the College Entrance Examination of Taiwan in 2011.